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Research Product 81-18

GUIDELINES FOR CONDUCTING A TRAINING PROGRAM EVALUATION (TPE)

ARI FIELD UNIT AT FORT KNOX, KENTUCKY

September 1981

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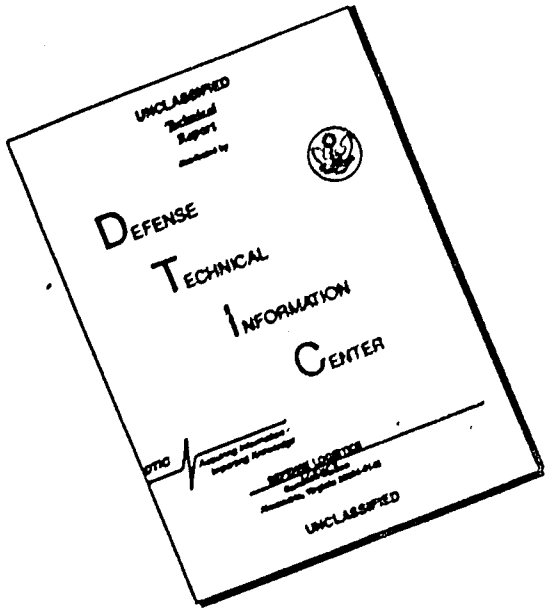

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REPORT DOCUMENTATION PAGE

READ INSTRUCTIONS BEFORE COMPLETING FORM

1. REPORT NUMBER: Research Product 81-18	2. GOVT ACCESSION NO.: AD-A120775
3. RECIPIENT'S CATALOG NUMBER:	
4. TITLE *(and Subtitle)*: GUIDELINES FOR CONDUCTING A TRAINING PROGRAM EVALUATION (TPE)	5. TYPE OF REPORT & PERIOD COVERED: Interim Report
	6. PERFORMING ORG. REPORT NUMBER:
7. AUTHOR(s): Donald M. Kristiansen, Bob G. Witmer	8. CONTRACT OR GRANT NUMBER(s):
9. PERFORMING ORGANIZATION NAME AND ADDRESS: US Army Research Institute for the Behavioral and Social Sciences, Fort Knox Field Unit, Steele Hall, Fort Knox, KY 40121	10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS: 2Q263743A794
11. CONTROLLING OFFICE NAME AND ADDRESS: US Army Research Institute for the Behavioral and Social Sciences, 5001 Eisenhower Avenue, Alexandria, VA 22333	12. REPORT DATE: September 1981
	13. NUMBER OF PAGES: 76
14. MONITORING AGENCY NAME & ADDRESS *(if different from Controlling Office)*:	15. SECURITY CLASS. *(of this report)*: Unclassified
	15a. DECLASSIFICATION/DOWNGRADING SCHEDULE:

16. DISTRIBUTION STATEMENT *(of this Report)*

Approved for open release; distribution unlimited.

17. DISTRIBUTION STATEMENT *(of the abstract entered in Block 20, if different from Report)*

18. SUPPLEMENTARY NOTES

19. KEY WORDS *(Continue on reverse side if necessary and identify by block number)*

Training Effectiveness
Training Development
Training Management
Training Feedback Information
Instructional Design
Human Performance

20. ABSTRACT *(Continue on reverse side if necessary and identify by block number)*

Training Program Evaluation (TPE) is a systematic method for identifying and correcting training program deficiencies by collecting and analyzing information on the training objectives, soldier test performance, and the process used in training and testing the soldiers. TPE is documented in four job aids that include: (1) procedures for planning the training program evaluation; (2) guidance in using and evaluating the information provided in the lesson plans; (3) forms and procedures for observing training and testing as they are conducted;

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(4) methods for analyzing training, testing, and performance data in order to identify training program deficiencies; and (5) guidance in modifying training programs on the basis of problems discovered during training program evaluation.

This job aid (Research Product 81-18) provides guidelines for conducting the overall evaluation, including guidance on using the other three job aids. The other three job aids in the set are: Research Product 81-15, A Job Aid for the Systematic Evaluation of Lesson Plans; Research Product 81-16, A Job Aid for the Structured Observation of Training; and Research Product 81-17, A Job Aid for Modifying Ineffective or Inefficient Training Programs.

Research Product 81-18

GUIDELINES FOR CONDUCTING A TRAINING PROGRAM EVALUATION (TPE)

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Office, Deputy Chief of Staff for Personnel
Department of the Army

September 1981

Army Project Number
20161741A795

Education and Training

FOREWORD

Guidance for training development is provided in US Army Training and Doctrine Command (TRADOC) Pamphlet 350-30, Interservice Procedures for Instructional Systems Development (ISD), August 1975. Some of the training being developed and conducted does not follow this guidance, however, because many of the training developers and deliverers have not been trained in the development of a training process; they are subject matter experts who are detailed to training development. Training is typically developed under a concern for what is being trained. How that training is developed, conducted, and evaluated is usually given less attention. Because training is seldom subjected to formal evaluation, ineffective training may go uncorrected. US Army Research Institute Fort Knox Field Unit has developed a system for formally evaluating the training process. Its use should measurably upgrade training development, conduct, and evaluation in the Army.

Training Program Evaluation (TPE) is a system for evaluating the effectiveness and efficiency of a training program. It incorporates the decision rules, data collection formats, and analysis procedures for evaluating the soundness of a training plan as expressed in lesson plans and training materials, evaluating the training and testing process, identifying training and non-training causes of poor soldier performance in training, and for recommending modifications to training and testing that have a high probabity of eliminating poor soldier performance in training.

This job aid, one of four in the system, provides guidelines for conducting the overall evaluation, and includes guidance for using the other job aids. It includes detailed procedures for: planning an evaluation; training and supervising training observers; planning, conducting, and managing training and testing data collection efforts; and translating training and testing data into recommendations for training program modification.

JOSEPH ZEIDNER
Technical Director

GUIDELINES FOR CONDUCTING A TRAINING PROGRAM EVALUATION (TYPE)

BRIEF

REQUIREMENT

The Army does not have a standard set of procedures for evaluating the effectiveness and efficiency of training programs. A need for such standardized formal procedures was identified by the Army Training Study in 1978. Guidance from the Army Training Study specified the development of procedural guides that would not require an analyst sophisticated in educational technology, would be applicable to established and developing weapon systems, and could be used in institutional, transition, and sustainment environments.

PROCEDURE

Training Program Evaluation (TPE) was designed as a system for evaluating the effectiveness and efficiency of a training program. The design of the TPE system was based on civilian and military training evaluation literature, industrial practice, and the experience of the research team. Included in the TPE system were procedural guidelines, decision rules, data collection formats, and analysis procedures for planning and conducting a complete training program evaluation. The guidelines, decision rules, data collection formats and analysis procedures were designed to allow a relatively unsophisticated evaluator to evaluate the soundness of a training plan as expressed in the lesson plans, evaluate the training and testing process, analyze the test score data, identify training and non-training causes of deficient soldier performance during training, and recommend modifications to training and testing that have a high probability of eliminating performance deficiencies by increasing training effectiveness.

To assist the evaluator in knowing what to look for during training and testing, observable elements of the training and testing process were specified. These elements, or items, included such things as whether or not everyone practiced the training task to standard, if the training aids specified by the lesson plan were used, whether or not tasks were demonstrated, if testing was contaminated by unwarranted prompting, etc. These items were formatted into a worksheet and given several field trials with typical users. The major field trial was conducted in conjunction with the M1 tank OT-III.

Following the series of field trials, lessons learned were compiled and the items, guidance, and suggested worksheet formats were finalized. For each set of observable items on the finalized worksheets, program modifications corresponding to those items were devised to enable the evaluator to correct any problems identified on the worksheets. Program modifications are therefore indexed to problems identified during the training, testing, or in the training plans and materials. Because of the particular importance of training objectives, practice and feedback to training effectiveness, additional program modification guidance was included for each of these topics.

There are four job aids in the series: one for the systematic evaluation of lesson (or training) plans, one for the structured observation of ongoing training and testing, one for modifying ineffective or inefficient training programs, and this job aid for use by the analyst in planning and conducting a training program evaluation.

FINDINGS

The TPE system has been used in several operational training program evaluations and has provided training process data not heretofore available. Users have found these data useful for "fixing" training problems.

UTILIZATION

Preliminary versions of the TPE materials have been provided to the Armor Center and School, the Armor and Engineer Board, and the Office of Armor Force Management and Standardization (OAFMS) at Fort Knox, the Soldier Support Center at Fort Benjamin Harrison, the Artillery School at Fort Sill, the Ordnance Center at Aberdeen Proving Ground, the Infantry School at Fort Benning, the US Army Training and Doctrine Command (TRADOC) Deputy Chief of Staff for Training, TRADOC Training Development Institute, and the National Defense Headquarters at Ottawa, Canada. Final versions have been requested. In addition, the system has been implemented, all or in part, at Fort Hood where the TRADOC Combined Arms Test Activity, TRADOC Systems Analysis Activity, the Armor Center, and OAFMS used it to evaluate the New Equipment Training for the M1 tank, at Fort Knox where it has been used to evaluate the Advanced NCO course, M1 Tank Basic Armor Training, M60A3 Basic Armor Training, and at Fort Bliss where it has been used as a baseline for a system for evaluating the NET programs accompanying Air Defense Developing weapon systems.

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SECTION I

INTRODUCTION

The heart of any training program is the training objectives upon which it is based. The training objectives define what the training program is supposed to accomplish. They describe the tasks and subtasks that the soldiers must learn to perform, the conditions under which the tasks are to be performed and the standards that the soldiers must meet in order to be considered proficient. The purpose of the training program is to arrange a series of training events that will enable the soldiers to accomplish the training objectives. Included in most training programs are tests for determining if the soldiers can accomplish the training objectives following training. Performance on the test following training may be used as an index of the effectiveness of a training program. Poor test performance suggests that there are training program deficiencies that may require changes in the training program. For example a given training program may be considered effective if, on completion of each task, 80% of the soldiers perform each task and subtask to the training standard under the training conditions the first time they are tested. If fewer than 80% of the soldiers demonstrate task proficiency for an objective the first time they are tested, the effectiveness of the training associated with that objective is called into question and an analysis may be required to identify training program deficiencies and modify training to correct those deficiencies.

Training Program Evaluation (TPE) is a systematic method for identifying and correcting training program deficiencies by collecting and analyzing information on the training objectives, soldier test performance, and the process used in training and testing the soldiers. TPE includes: (1) procedures for planning the training program evaluation; (2) guidance in using and evaluating the information provided in the lesson plans; (3) forms and procedures for observing training and testing as they are conducted; (4) methods for analyzing training, testing, and performance data in order to identify training program deficiencies; and (5) guidance in modifying training programs on the basis of problems discovered during training program evaluation.

TPE methods and procedures are described in a series of four user-oriented job aids. Separate job aids are used in evaluating lesson plans (Research Product (RP) 81-15), collecting training and testing process information (RP 81-16), and modifying the training program in response to deficiencies discovered during the evaluation (RP 81-17). This job aid (RP 81-18) provides guidelines for conducting the overall evaluation, including guidance in using the other job aids. The four job aids are listed below, and a brief description of each is provided.

Research Product 81-15, A Job Aid for the Systematic Evaluation of Lesson Plans. The basis for the training process is the lesson plan. The lesson plan prescribes how training and testing should be conducted. Good lesson plans can (but do not always) lead to good training. Poor lesson plans almost never lead to good training. This Job Aid will help you answer the question, "If the training is given in accordance with this lesson plan, is it likely to be any good?" It will help you evaluate lesson plans for adherence to sound training principles.

Research Product 81-16, A Job Aid for the Structured Observation of Training. In order to collect information on the training process, you have to know what it is that has been done right or wrong. For example, in order to collect information about practice, one must know to look for supervised hands-on performance of the tasks listed in the training objectives during training. To tell when practice has occurred, one must observe each soldier as he or she practices, recording how many soldiers received supervised hands-on practice for each task. A practice event that has been done correctly will require every soldier to practice each task to standard on at least one unassisted trial. Otherwise the practice event has not been conducted correctly. This Job Aid lists 109 questions that can be asked of an ongoing training program. For each item, the Job Aid contains a short paragraph describing what to look for, how to decide if it has occurred, and how to decide if it was all right.

Part of your job as an analyst will be to select from those 109 the items you want answered about the training program you will be evaluating. You will also need to decide how to best format the items you select on the TPE worksheets. Formats for four worksheets are suggested in the Job Aid. Worksheet 1, Training Plan, will help you summarize the lesson plan so that you can determine if the training given followed the lesson plan without having to carry the entire lesson plan with you when you (or training observers who work for you) go out to observe training. Filling out Worksheet 1 will also alert you to possible problems when the training is given. Worksheet 2, Training Environment, will contain the items you select to gather information on the place where the training was conducted, the training site. Worksheet 3, Training Observation, will contain the items you select to gather information on the ongoing training process. Worksheet 4, Testing Observation, will contain the items you select to gather information on the testing process.

Research Product 81-17, A Job Aid for Modifying Ineffective or Inefficient Training Programs. When you have checked the lesson plans, observed the training and testing, and obtained the test score sheets (to determine first time rates), you may decide that, for one or more tasks, there is a problem. Your next step is to decide what probably caused the problem and what to do about it so you can tell the training developer and/or training manager what went wrong and make recommendations for changing the training program to correct the problem. For each possible training program problem identified using the items in the Observer's Job Aid (RP 81-16), there is a description of the problem and a corresponding problem solution in the Modifications Job Aid (RP 81-17). You can go to the appropriate section of RP 81-17 and find a description of the probable problem and suggestions, derived from sound training and training management principles, for modifying training to eliminate the problem.

And, finally, Research Product 81-18, Guidelines for Conducting a Training Program Evaluation (TPE), the Job Aid you are now reading. This Job Aid will help you set up and control the whole evaluation process. It has been written assuming that you are the analyst for a TPE but have not been formally trained to evaluate training programs. It will provide you with detailed guidance in planning and conducting the training program evaluation, including guidance in using the other job aids. The process is complicated and cannot be conducted

automatically. The Research Products are called Job Aids but, in a sense, do not absolutely fit the usual description of a Job Aid. "How to" guidance is perhaps a better description of these Research Products.

Following the procedures provided in these four job aids will allow you to answer most of the questions that training managers want answered in evaluating a training program. However, there are two major questions that training managers often ask about a training program that TPE does not address. TPE will not answer the question "Are we teaching the right things to the right standards under the right conditions?" That is called "front-end analysis." TPE does not include front-end analysis. It will not answer the question, "Do the skills and knowledges learned in this training help the soldier do his or her job?" That is called "transfer of training." Front-end analysis and transfer or training may need to be considered in a complete program evaluation; they just are not covered by TPE. What TPE is concerned with is the question of whether or not good training and testing procedures are consistently followed throughout the training program.

SECTION II

EVALUATION: AN OVERVIEW

There is widespread agreement among the Army leadership that training programs should be evaluated. But there is little agreement on what is meant by evaluation and even less agreement on how training programs should be evaluated. For some, evaluation is synonymous with testing soldiers. Others think of "validating instruction" when evaluation is mentioned. Still others conjure up visions of large-scale tests and analyses such as Operational Tests, Force Development Tests and Evaluations, and Cost and Training Effectiveness Analyses. Many methods of evaluation have been and are being used to assess the effectiveness of training programs. Some evaluators prefer to question soldiers or instructors about the adequacy of the programs. Others maintain that the only way to evaluate training is through the use of carefully designed performance tests and rigorous statistical analysis of the data. Among those that advocate performance testing as the means to evaluate training programs, there is often disagreement concerning when and under what conditions the performance should be measured.

TPE as a system for evaluating training programs does not utilize soldiers' or instructors' opinions concerning the training, nor does it rely on performance testing for the bulk of its data. TPE is a balanced approach to training program evaluation combining planning, analysis, observation, performance testing and program modification into an integrated system for evaluating training. TPE helps the training analyst to evaluate four major aspects of a training program. The four aspects are listed and described below.

Training Goals

First, evaluation, as used in TPE, is a process for deciding if a training program is, in fact, achieving its goals. The first question, then is:

> Are the goals of the training program clearly stated?

TPE cannot proceed unless these goals are clearly stated. Goals are usually stated as training objectives. A clearly stated training objective specifies tasks, conditions, and standards that are easily understood, measurable, and achievable within the training environment. Major goals are expressed as terminal objectives for the program and interim goals are expressed as intermediate (or enabling) objectives.

Training Design

Once the objectives have been clearly stated, the second question can be asked.

> What is the likelihood that the training program, as designed, will achieve these goals?

The design of the training program is typically described in the lesson plans for that program. Training design includes the procedures used for

training the soldiers to perform the required tasks and for testing soldier performance upon conclusion of the training. Guidance in evaluating the training design is provided in Research Product 81-15, A Job Aid for the Systematic Evaluation of Lesson Plans. Other factors influencing the effectiveness of the training design, including personnel, resource constraints, and training and testing process variables are described in Research Product 81-17, A Job Aid for Modifying Ineffective or Inefficient Training Programs. If lesson plans are not available, the training design must be evaluated during the delivery of training. Evaluating the training design as the training is being given, however, requires that each station at which training is conducted be monitored because each instructor may deliver instruction of his or her own design.

While these job aids provide some guidance in evaluating the training design, you may need to obtain the assistance of an educational technologist if your evaluation indicates many design problems or if lesson plans describing the training design are not available. You may also need to consult an educational technologist or some other source if you wish to answer questions about the training design not covered by TPE. For example, these job aids do not help you determine if the program design is such that it will produce the skills needed on the job. The job aids can help you determine if the training program as designed will likely train those skills listed in the training objectives.

Training Process

With the objectives clearly stated and with a firm knowledge of what the nature and sequence of training events should be (the program design), the analyst can ask:

> Has the training program, as designed, been faithfully implemented?

This question asks if the training program being conducted is in accordance with program design. Is there one program being conducted or as many programs as there are instructors? TPE activities here find out, in detail, what is happening so that the differences between "what is happening" and "what should be happening" can be clearly defined for training management personnel.

Determining if the training program was conducted in accordance with the program design may provide sufficient information about the training process in some cases. However, if the training design is poorly specified in the lesson plans or if the training delivered differs greatly from the training design, then additional information is required to answer the following question.

> Are effective training procedures being utilized in conducting the training program?

In order to answer this question, you must collect training process information as the training is being conducted. Using forms and procedures described in the Observer's Job Aid (RP 81-16), information is collected on the conduct of such training activities as lectures, demonstrations, and practice.

Training Products

Having evaluated the training goals, training design, and the training process, the final question can then be addressed.

> Did the training program achieve its goals?

This is the usual evaluation question that is asked. Answering this question involves measuring the product of the program, the skills and knowledges of the trained soldiers. This is the only question that training management usually asks and training management personnel are usually impatient with any attempt to answer the first three questions first. This question must come last, however, because:

> If the goals are not clear, there is no way of knowing if the goals have been achieved.
>
> If the training program is implemented using a deficient training design, the training goals are not likely to be achieved.
>
> If program implementation is not in accordance with program design, then the effectiveness of the training may vary from one day to the next and from one training station to the next. The peculiarities of the current program implementation may determine whether or not the goals are met.
>
> If the training procedures being utilized in conducting the training program are not effective, the chances of achieving the goals of the program are greatly diminished.

The most effective approach to evaluating a training program is to answer each of the five questions in turn. Each question answered provides useful information for evaluating the training program and makes the succeeding questions easier to answer. If the training goals are not clearly stated, a clear statement of the goals must be formulated before the training design, training process, or training products can be evaluated. If the training design is deficient in some way, it should be modified prior to implementation of the design in the training program. If the evaluation shows that program implementation is not in accordance with program design, the differences will have to be resolved before meaningful evaluation can continue. Even when a review of the training design indicates that it is likely to be effective and the program is implemented as designed, the procedures used during the conduct of the program should be carefully observed so that any other deficiencies that might prevent the achievement of the goals of the training program can be identified. If observation of the training process identifies further program deficiencies, changes in the training program should be made to eliminate the deficiencies. When each of the first four questions have been addressed and the necessary program changes have been made, the training program is likely to achieve its goals. Thus, making the proper response to the first four questions increases the chances that the final question will be answered affirmatively when the product of the training program is measured.

Notice that TPE requires that program changes be made whenever deficiencies are discovered. In practice, however, training developers and implementers tend to resist change. This resistance to change can be overcome to some extent by forming a working team consisting of yourself and representatives from the training development and training implementation agencies. The team members should be from the working (rather than the management) level so they can readily determine what changes are feasible given the constraints under which they must operate. This team can examine the results of the TPE and decide what changes will produce the most benefit, which changes are feasible, and which changes are most likely to be adopted by their agencies.

Although TPE is more effective when program changes are made as each question is asked, practical considerations sometimes prevent the necessary changes from being made in a timely manner. In such cases, you may have to continue the evaluation, despite the fact that you find deficiencies at each stage; the goals are not too clear; the design is vague; the design has not been faithfully implemented; and the procedures used during training do not conform to accepted training practices. When this happens, you cannot stop when you find vague goals, for example. You will have to complete the TPE and then make recommendations across all phases.

The following outline describes the sequence of tasks that need to be completed to conduct a full TPE. More detail in these steps follows in this job aid.

Plan the Training Program Evaluation.

1. Background on TPE.*

   See: Introduction. Section I, RP 81-18.
   Evaluation: An Overview. Section II, RP 81-18.

2. Get Information on the Training Program.

   See: Planning the Evaluation. Section III, RP 81-18.

Describe and Evaluate the Training Program as Planned.

1. Complete Worksheet 1, Training Plan, for Each Block or Module.

   See: Filling out Worksheet 1, Training Plan. Section IV, RP 81-18.

2. Evaluate the Training Design as Described in the Lesson Plans.

   See: A Job Aid for the Systematic Evaluation of Lesson Plans, RP 81-15.

*The analyst should be familiar with all four job aids before attempting to conduct a TPE.

Observe the Training Program as Conducted.

1. Train Observers (if necessary).

   See: Conducting a Workshop for Training Observers. Section IV, RP 81-18.

2. Describe Actual Training Environment.

   See: Training Observation Worksheets. Section II, RP 81-16.

3. Observe Ongoing Training.

   See: Training Observation Worksheets. Section II, RP 81-16.

   Collecting Data During Practice Events. Section V, RP 81-18.

4. Observe Testing.

   See: Training Observation Worksheets. Section II, RP 81-16.

Check for Soldier Performance Deficiencies.

1. Analyze the Testing Results.

   See: Analyzing Test Score Data. Section VI, RP 81-18.

   Matching Tasks, Conditions, and Standards Across Lesson Plans, Training, and Testing. Section VII, RP 81-18.

Outline Probable Causes of Performance Deficiencies.

1. Examine All Evidence.

   See: Conducting the Training Program Evaluation. Section VIII, RP 81-18.

Report Results of TPE and Make Recommendations.

1. Report Results of TPE.

   See: Conducting the Training Program Evaluation. Section VIII, RP 81-18.

2. Make Recommendations.

   See: A Job Aid for Modifying Ineffective or Inefficient Training Programs. RP 81-17.

SECTION III

PLANNING THE EVALUATION

The conduct of any training program evaluation rests solidly on the analyst having free access to the following seven items. If you, as the analyst, do not have free access to any one of these, you will not be able to conduct a very useful TPE. The requester/user of the TPE must be made aware of this at the beginning of the planning phase.

1. A list of the training objectives and sub-objectives to be met by the course that includes each task and subtask and the associated training conditions and standards.

2. All the lesson plans for the course including a copy of each practical exercise and test.

3. Copies of all the soldier hand-outs for the course (TMs, FMs, worksheets, etc.).

4. Access to all training and testing events. "Access" means getting close enough to what is going on to see and hear it all. Only established safety considerations should be allowed to interfere with this access.

5. Access to the soldiers and instructors so that information can be collected on their reactions to the training. Free access must be possible, that is, observers must be able to talk to either soldiers or instructors without representatives of the respective chain-of-command being present.

6. Copies of all completed score sheets produced during any practical exercise or test. This includes the results of any exercise during collective training (squad, crew, section, platoon, etc.).

7. Complete information on all training program changes that are made during the evaluation including revisions of the lesson plans, training materials, or tests.

A. Meet with the Requester/User of the TPE.

Set up a meeting with the agency for which you are doing the TPE. If you are doing the TPE for your supervisor, then this meeting is with him or her. Use this meeting to outline the seven needs listed above. Explain the TPE process to the user so that time and resource requirements are understood by all parties concerned (it is assumed that you have read all four job aids). You will probably be tasked, at the outset, to do a TPE with insufficient time and personnel. You must explain that observers are needed to cover the training and testing events. TPE is a data based system for which data on the training process is required. Explain that these observers will be needed some time in advance of the start of training so that they can be trained. Explain that not everyone makes a good observer so you may have to start out with more personnel than you need. This is all negotiable, of course, but the usefulness of the results will be directly related to the support you receive.

Have a representative of the training development agency and the department actually giving the training to the soldiers at this meeting so your activities during the training program are understood by the instructors. Strongly emphasize the point that TPE is not a system for evaluating the instructors. The instructor is an instructional medium, a way of getting information to the soldiers. "Instructors" are not the "training program." The program is much more. A glance at the categories in RP 81-17 will confirm that few of the potential problems with training can be ascribed to the instructors. You will have to spend some time on this because instructors have been taught by past practices that training evaluators spell trouble for them. You and your observers will start out as "trouble" and will have to work to change this image. When the training to be evaluated was developed by the instructors who deliver it, you as the evaluator become even more threatening. In such cases, you should take special pains to assure the instructors that you will be working with them directly, rather than with their supervisors, to obtain the best training program possible.

Keep a record of this meeting. The list of items below should be filled in during the meeting or as a result of the meeting.

1. Date. The meeting date.

2. Participants. The names of the participants, their agencies, what connection the agency has to the TPE, and their phone numbers.

3. Course. The name of the course you will be evaluating.

4. Purpose of Course. Get a copy of the document that states the purpose or goal of the course. You can use this to check on whether the events in the course are all related to this purpose or goal. This purpose should be clear and unambiguous. If the purpose is not clear, you will not be able to tell if the training is directed toward the goal.

5. Primary Audience. For what kind of soldier was the course designed? This should be clearly stated by the training developer. If it is not clear exactly who the training has been designed for, how can the training events be designed to fit a particular audience?

6. Expected Entry Skills/Knowledges. Training developers write for a particular audience. In all cases they have a particular kind of soldier in mind. Soldiers coming to the course are assumed to have some prior skills and knowledges that are necessary for performance but do not have to be taught during this course. Find out what these expected skills/knowledges are. You may have to dig a little. This piece of information has probably not been generated before. It will probably be a "new" question. You will use this information to check on whether these skills/knowledges are, in fact, held by the soldiers. If you find instructors covering these skills/knowledges in any but very general review sessions, you will have to find out why (since they are already supposed to know these things before coming to this course). If the soldiers are not knowledgeable, the training needs to be redesigned. If they are, the instructors are wasting valuable training time.

7. User. Name of the agency that has "chartered" the TPE and the name and phone number of the user Point of Contact (POC).

8. Training Schedule. Get a copy of the preliminary training schedule and arrange to get copies of all additional schedules and schedule changes as they are produced.

9. Contacts. Get the names and phone numbers of the POCs from the training development agency and the instructor group.

10. Constraints. List, in some detail, all the constraints that will limit your activities during the TPE. Include such things as too little time, too few observers, not enough time between expected receipt of lesson plans and observation of training, limited access to some phases of collective training, difficulty in getting "raw" test score data, limited clerical support, etc. Forewarned is forearmed! Your goal here is to not be surprised later when constraining factors show up. If you know about them early, maybe you can work around them.

11. Resource Materials. Make a list, in detail, of all the documents you need (lesson plans by title, test score sheets, soldier hand-outs, etc.), who you will get each one from, when you can get each one and when you actually got each one, and a space for when you get each change. Expect a lot of changes.

12. Completion Date. When will your final report be due. Note that this TPE system suggests that you analyze each "block" or "module" separately as soon as the block or module and the associated test is over. The final report is a formality but it still takes time.

13. Contingencies. List any events or constraining factors that will affect your meeting the completion date (particularly lack of resources).

14. Previous Evaluations. Find out if there have been any previous evaluations of all or any part of this course. If there have, try to get copies of all the information that may be available. You can use this information to see if any problems were identified and solution strategies offered. You can then check to see if these problems still exist, if the solution strategies were followed, and if the solution strategies that were followed have eliminated the problem.

15. Comparative Study. Find out if the performance of the soldiers in this course is to be compared to the performance of the soldiers in some other course or earlier version of this course. If you are expected to compare two or more training methods, get help from someone trained to conduct educational research. The problems in comparing two training methods or conducting research to see if training produces better job performance in units are beyond the scope of this TPE system.

16. Soldier Selection Standards. On what basis will soldiers be selected to attend this course? You can use this information to find out if the soldiers in the course actually meet or exceed the selection standards. If the soldiers

do not meet the selection standards, then they are the "wrong" audience, Poor performance may be more a factor of this failure to meet the selection standards than problems with the course.

17. Entry Test. Find out if the expected entry skills/knowledges are going to be assumed or tested for. If there is an entry test, get a copy and arrange to have observers at the test.

18. Instructor Selection Standards. On what basis will instructors be selected? Find out if instructor training is required. Such training is required more often than it is given. Many training problems can be traced back to a failure on the part of training management to properly train the instructor group.

You may not be able to obtain all of the information listed above during the course of a single meeting. However, you should obtain this information in the planning phase as early as possible and certainly before the training program begins.

B. Select Tasks to be Evaluated.

The user may either ask that you evaluate all tasks or ask that a sample of the tasks be evaluated. If the user wants all tasks evaluated, you must make sure that the user is willing to commit the necessary personnel resources to cover all the tasks. If only some of the tasks are to be evaluated, the user should select which tasks are to be evaluated. If a sample of tasks are to be used, you must make it clear to the user from the beginning that you will only provide evaluation information on those tasks selected and you cannot vouch for the effectiveness of training for any task that has not been evaluated.

C. Prepare a Schedule of Events for the Evaluation.

Outline your tasks for completing the evaluation. This task has not been called "outline a milestone schedule" because such schedules are usually not developed in enough detail. Be as detailed as you can be and update regularly.

List the tasks that you need to do in order to perform the TPE.

List each meeting that you know will be required.

List each item that you know will be needed.

Catalogue the resources you know you will need.

Schedule workshops for training the observers.

List the training modules or tasks that need to be observed during training.

List the tests that need to be observed.

List the briefings that you know will need to be given.

List the reports that you know will be required.

Estimate when each task will occur, how much time it will take, what resources you have to satisfy the requirement, and who will do what on each task. Be prepared for frequent changes.

SECTION IV

PREPARING THE TPE WORKSHEETS

Preparing Worksheet 1, Training Plan

Worksheet 1, Training Plan, serves a dual purpose. The task of filling it out, of digging the needed information out of lesson plans, training outlines, etc., will make you familiar with the sequence of events that are supposed to happen according to the plan. You will find out, for example, if the training objective specifies what the soldiers will "do" after training, what terms and concepts are being introduced, whether a demonstration is planned, what sequence of activities is planned for the practice events, etc. You will be able to make a determination of how good the training design is from a comparison of what is in the lesson plan with the questions in RP 81-15 and the guidance in RP 81-17. In addition to these side benefits to the analyst, the completed Worksheet 1 provides a convenient outline for the observers to follow and on which they can record whether or not training proceeded in accordance with the plan. Deviations from the plan can be identified in detail rather than globally from a general impression. A blank Worksheet 1 is in Appendix A. An example of a completed Worksheet 1 is in Appendix A, RP 81-16.

Generalized instructions for completing a Worksheet 1 follow below.

Class/Lesson Title _____

Training Observer _____

The Class/Lesson Title is the name of the block of instruction that is to be observed. Examples are: Assembly/Disassembly of the M240 Machinegun, Setting Headspace and Timing on the M2 HB Machinegun, Conduct of Fire (M60A1 Tank), First Aid, Supply Management, Operation of the PRC-77 Radio and Entering/Leaving the Net. Some of these are long blocks of instruction and some are short. The "block" of instruction on which an evaluation will be made is determined by how the training agency blocks, or forms modules, of instruction. Accept their blocks as given. For each block, then, you will have one Worksheet 1 (but as many Worksheets 2-4 as you have observers). Each observer will get his or her own copy of this completed Worksheet 1. The entry in "Class/Lesson Title" is taken from the lesson plan. "Training Observer" is filled in by the observer when he or she takes his or her copy to the training site.

1. List under the appropriate heading below the training aids, equipment, and materials that will be used during this lesson.

Training Equipment	Training Materials	Training Aids

The lists required by Item 1 are obtained directly from the lesson plan. "Training Equipment" is defined to be any equipment used by the soldiers during training. Examples of Training Equipment include weapon systems, tools, test

equipment, simulators, etc. "Training Materials" are all printed materials (other than job aids) provided to the soldiers for their use during training. Training materials include such things as technical manuals, workbooks, and handouts. "Training Aids" are any equipment or materials used by the instructor for the purpose of making the training process easier or more effective. Examples of Training Aids include slides, films, projectors, audio and video equipment, charts, magnetic boards, chalkboards, models, mockups, sandtables, etc. Note that the term "Training Aid" is reserved for equipment used by the instructor. All equipment used by the soldiers (which may also be used by the instructor) is referred to as training equipment.

2. List any job aids that will be provided to soldiers and used during this training.

Job aids are step-by-step directions to be used in the actual performance of the tasks on-the-job. Job aids tell the soldier when-to-perform and how to perform.

3. From the lesson plan, briefly describe the characteristics required of the training site. Include how the site should be prepared for training.

List here any requirements that the training site should meet to include preparation of the site for training (see Appendix A, RP 81-16 for an example). Site requirements include such things as bleachers, an indoor classroom, rolling terrain, a laser-safe range, etc. Site preparation can include such things as certain tools being available, certain malfunctions being introduced into equipment, specifications for preparing a concurrent training area, etc.

4. List safety precautions that should be emphasized and followed during this training.

List all safety precautions here. This will help the observer check to see if the required safety precautions are followed and will also help document any constraints on observation imposed by safety requirements.

TRAINING OBJECTIVES

Task No	Objective	Source

Part II of Worksheet 1 is the observer's main source for information about the training objectives. Whenever an observation requires that the observer know what the tasks/subtasks, conditions, or standards are that are associated with a particular training objective, Part II of the Training Plan Worksheet is a ready source of this information.

"Task No" can be used to record an official task number or you can use this column to sequentially number the tasks and subtasks in the block of instruction.

Under "objective" list the training objectives from the lesson plan (see the example in Appendix A). The amount of detail used here is a personal matter. Use enough detail to communicate to your observers. You can use whatever abbreviations all of your observers will be familiar with. For example: T, C, S for task, condition, standard; tng for training; AI for assistant instructor; sta for station; etc. Obvious abbreviations will shorten your work load in filling the form out.

Use the "Source" column to identify the source of your entry. This may be a lesson plan number and date, a dated training plan or training outline, an FM/TM/TC, etc. This can be used later, when changes may have been made, to find out where this particular entry came from.

TRAINING EVENTS

Task No	Event Type	Events	Occur		Comments
			Yes	No	

Part III of the Training Plan Worksheet is the observer's main source for the training plan itself; what is supposed to happen and the sequence of events. You will have to dig through the lesson plan to pull out the framework on which the training rests. This can be difficult for plans that are not highly structured. If you have a lot of trouble trying to figure out, from the lesson plan, what is supposed to happen, then the training has been pretty much left up to the instructor to determine. A lack of structure in training may be by design, accident, or because of a poorly trained lesson plan developer. The "problem" here rests with the plan itself, hence, the "fix" should also be at this level. When you cannot specify what is supposed to happen, alert your observers to carefully record what did happen so you can determine, at least, what the actual training plan was, this time. There should be enough detail in the lesson plan to permit any subject matter expert to pick up the plan and give the same training as any other subject matter expert.

"Task No" refers back to the number you used in Section II of Worksheet 1.

"Event Type" refers to the kind of activity planned; lecture, demonstration, practice, etc. Five different kinds of events are outlined for the training observers in RP 81-16. For consistency, those five are repeated here.

1. OBJ (Objectives/Purpose). Objectives are stated (for the soldiers) to include tasks, conditions, and standards, and the purpose of the training is explained (may also be called an introduction).

2. TERM (Terminology). New terms are identified and unfamiliar concepts are explained (the usual lecture event where task performance is "talked about").

3. DEMO (Demonstration). Soldiers are shown how to perform tasks.

4. PRAC (Practice). Soldiers practice tasks or subtasks hands-on.

5. TEST (Test). Tasks are performed for evaluation purposes, performance is scored, and scores are recorded.

You and your training observers will communicate better if you do not try to have too many different kinds of training events. The five above are offered as being reasonably all inclusive. If a lesson plan describes a training event that does not fit any of these descriptions, pick the closest event title and add some comments in the "Events" column to help the observers identify it when it happens.

The "Events" column is where you describe the event in enough detail so that the observer can identify it when it happens (or knows it did not happen). See Appendix A of RP 81-16 for an example.

For TERM events, list the terms and concepts being introduced so the observer can check them off as they occur.

For DEMO events, list the task (subtask, step) being demonstrated and any special instructions to the instructor regarding the demonstration.

For PRAC events, list the task (subtask, step) being practiced and any special instructions to the instructor or assistant instructors regarding the practice event. If the lesson plan contains an annex listing the activities that the assistant instructor is to have each soldier complete, attach the annex rather than duplicating it on this Worksheet.

Remember that the purpose of this column is to describe the training event for the observer, with as few words as possible, in language that the observer will understand.

The column labeled "Occur Yes/No" is for the use of the observer in recording whether or not the events happened. You might also suggest to your observers that they jot down the time for each "Yes" (or related group of yes checks). This will provide a record of the amount of time allocated to each objective and event.

The "Comments" column is primarily for the use of the observer in recording what happened when deviations from the planned events (and the sequencing) occur. The observer should put enough information in here to let you know what happened during these deviations.

Worksheet 1 is suggested as a substitute for the actual lesson plan for the use of the observer. By taking the time to complete Worksheet 1 you make it much easier for the observer to determine if the lesson plan was followed during training, thereby increasing the objectivity of the data that you receive.

Constructing Worksheets 2, 3, and 4

Using the items described in RP 81-16, you can construct Worksheets 2, 3, and 4. Table 1 in RP 81-16 lists possible items to be included in Worksheet 2,

the Training Environment Worksheet. Tables 2, 3, and 4 in RP 81-16 list items that can be used in constructing Parts I, II, and III, respectively of Worksheet 3, the Training Observation Worksheet. Similarly items for building Worksheet 4 are described in Table 5 of RP 81-16.

In constructing these worksheets you will need to decide two things: (1) How should the worksheets be formatted to make the worksheets easy to use and provide sufficient information for the analysis? and (2) which of the items listed in Tables 1 through 5 of RP 81-16 should be included on each worksheet? The following paragraphs provide guidance in making these decisions.

Appendices B, C, and D in RP 81-16 give sample formats for Worksheets 2, 3, and 4, respectively. Notice that the sample format is the same from one worksheet to the next; only the worksheet items and headings differ. The headings on the sample worksheets are designed so that only essential information is asked for on each worksheet. Thus a particular piece of information generally does not appear in more than one heading; the exception to this is the class title, which is used as a bookkeeping device to match data pertaining to the same block of instruction. The sample format shown in RP 81-16 is recommended because of its simplicity and capacity to capture objective data. If you find this format inconvenient, you may modify the format to better fit your application. It is strongly recommended, however, that you retain the requirement to answer each question with a "YES" or "NO" response, and refrain from making any format change that requires observers to submit subjective judgments about or rate the training that they observe. Experience with having observers make judgments about the training or rate the training events has shown that the data provided by such methods tends to be highly subjective and of very little value in evaluating a training program. Note that the "Comments" column included on the sample worksheets is not provided for the observer's subjective judgments or opinions about training; the column is provided to allow the observers to provide additional detail about what they observed.

After you decide on a format, you must select the items to be included on each worksheet from the items listed in the appropriate table of RP 81-16. Item selection is one of the most important tasks that you will perform, so you should take special care in making the selection. There are several things that you should consider in selecting the items. Among these are the item difficulty, the capabilities of the training observers, the depth of the evaluation required, and coverage of the major training events. The items in RP 81-16 are divided into two levels of difficulty - items requiring easily made observations that do not involve judgment calls on the part of the observer and items requiring observations that are difficult to make or involve judgment calls on the part of the observer. The latter more difficult items are designated with an asterisk in RP 81-16. How many difficult items you should include depends on the skill and capabilities of the training observers, the depth of analysis required for the training program being evaluated, and how broadly you wish to cover the training events. If your observers have had little experience using TPE or you feel that their skills as observers are limited, you may want to minimize the number of difficult items included. On the other hand, if you want to analyze the training program in depth, you will need to include many of the more difficult items. In order to provide adequate coverage of the

training events, some of the difficult items in addition to the easier items will need to be included on the worksheets. The items in RP 81-16 are arranged by groups of related items. To provide good coverage of the training program, you should generally include items from each group. For example, all items relating to demonstration of tasks are grouped together, as are all items relating to feedback. Generally, it is advisable to include some items on demonstration, some on feedback, and some from the other groups listed in RP 81-16. It is especially important that the items chosen provide adequate coverage of such major training events as the training objectives, terminology, demonstration, practice and testing. To the extent that these training events are not adequately covered by the worksheet items, the usefulness of TPE as an evaluation tool will be diminished.

Before using the worksheets that you constructed to evaluate an entire training program, you should first pilot the worksheets against a block of instruction to ensure that the worksheets yield the kinds of information that you need. Then, pilot the worksheets in the TPE workshop to determine if the worksheets can be used by the training observers who will collect the data during the training program. You may find it necessary to add or delete items on the basis of these pilot tests.

SECTION V

If the training program you are evaluating has training going on at several different sites at the same time, and you want to cover more than one site at a time, you will need help. Sites may be physically distant, like two separate training areas. There may be a lot of them close together, like a number of training stations in one training area. Or it may be that more than one lesson is being given at the same time in different places. The point is, you can only be at one place at a time. If the evaluation requires you to do more than this, you will need additional personnel to act as training observers.

Not everybody makes a good training observer. Soldiers seem to sort themselves out into three different categories when it comes to observing and recording training data.

There are those who just cannot seem to get beyond the task itself. They get lost in observing how the task is performed. They either already know how to do it and want to make sure that the instructor is teaching it correctly, or they do not know how to do it and get caught up in learning how. They cannot see the training "process." Subject matter experts (SME) quickly fall into this pattern. For this reason, it may be best if you did not try to get SMEs for training observers. You will have to take what you can get, of course. Just do not try too hard for SMEs. Soldiers who have trouble "seeing" training process are hard to identify. You may be able to identify them from their performance during this workshop.

There are also those who can and do see training "process" and can describe what they see to you orally but have a lot of trouble writing down what they see. The problem with using these soldiers is that you will not get a record of their observations from them; you will get their overall impressions and interpretations. These are unique to them and not very useful in a TPE. They will not provide you with data.

Finally, there are those that can see training "process" and can prepare useful written comments on what they see. These are the soldiers you will want for training observers.

One purpose for the workshop is to sort your observers into these groups as best you can before they begin to collect real data for you. If you have to keep them all, you can use the workshop experience to decide who will do what or who will get which items from the Observer's Job Aid (RP 81-16).

A second purpose for the workshop is to try out your item selection from the Observer's Job Aid. It will give you a chance to see if the items you have chosen answer the questions you have about the program. You should have chosen some difficult items (those that are starred in RP 81-16) and some easier items. You will be able to estimate which of your observers will be more able to provide data on the more difficult items.

A third purpose for the workshop is to show the training observers that they can, in fact, see training "process" and make useful comments. The experience will show the observers that the worksheets are just that; sheets for their convenience in organizing their comments and helping them remember what to look for. The workshop should reduce their anxiety. You can use it to tell them, clearly, that the worksheets are not checklists and should not be used as checklists.

A fourth purpose for the workshop is to force you and your observers to try the system one time before you go live with the real training program. The descriptions in the Observer's Job Aid will take on added meaning as a result of the workshop. New training observers often have a "Yeah! Sure!" attitude about it before they try it for the first time. After they try it once, they may find out that it requires more attention and effort than they planned on putting into it. Some will provide the effort and some will not. You need to be able to tell them apart.

The main purpose of the workshop, however, is to train the observers to use the Observer's Job Aid and the worksheets that you constructed for evaluating the training program. This may be a more difficult task than it first appears. The following "training plan" for a training observer's workshop is provided as a guide.

1. The workshop should be scheduled for three consecutive days, i.e., Monday-Wednesday, Tuesday-Thursday, or Wednesday-Friday. Try not to break the workshop up over a weekend. Schedule for three full days. You may not use all of the third day but the first time you fail to schedule all of it will be the one time you will need it. Arrange the workshop in a fashion similar to the following.

Day 1.	Morning.	Introduction (objectives, purpose, schedule, etc.).
		General background on evaluation (use Sections I and II of this Job Aid as a basis for this).
	Afternoon.	Terminology and "demonstration" (go through the items that will be on Worksheets 2-4 in detail, making sure that they understand what the items mean, what they need to "see," and how they should record their observations). Go over Worksheet 1. Use your presentation as a sort of demonstration since a live demonstration will probably not be possible. If you can get a filmed or televised piece of instruction, you may be able to use it for a demonstration. (See RP 81-16 for information on completing the worksheets).
Day 2.	Morning and Afternoon.	Prepare to observe instruction and observe instruction. The lesson to be observed should be 3 to 6 hours long and should, if possible, include a test. It must include practice.

Day 3. Morning. Each observer organizes his or her data.

Afternoon. Lead the group in going over each observer's data and observations. Summarize the experience for the group.

2. Try to have no more than five observers in the workshop. If you have more than five, you will have a hard time attending closely to each one. Since one of the reasons for having the workshop is to become familiar with the potential of each observer, having too many to do this well defeats that purpose. In addition, more than six observers (five plus yourself) in a training site becomes disruptive. You and the observers will be a distraction in any event. Try to minimize the impact by keeping the numbers small.

3. Since the practice part of the workshop will involve observing actual ongoing training, you will have to find a piece of training to observe. This piece of training can be part of a formal training program (institutional or transition training) or a lesson being given by a unit as part of a unit training program. The lesson should include lecture, demonstration, and practice events and, if possible, a test. At least one week before the workshop, arrange for the group to observe the training. Make sure the primary instructor knows the group is coming. Get the lesson plan and prepare Worksheet 1 (see Section IV in this Job Aid).

4. Provide each observer with a copy of the Observer's Job Aid (RP 81-16) and a completed Worksheet 1 at least 24 hours in advance of the workshop.

5. Have the group meet at a site that is well lighted, free of noise distractions, has a writing surface for each observer (tables, desks, etc.), and has either a chalkboard, large tablet and easel, or butcher paper and easel. You will need this site for day 1 and day 3.

6. Provide the observers with the training objective for the workshop.

TASK. The participant will observe ongoing training and testing so as to answer the questions on Worksheets 2 (Training Environment), 3 (Training Observation), and 4 (Testing Observation) and to determine if the training equipment/materials/aids, job aids, training site requirements, safety precautions, and training events listed on Worksheet 1 have been followed.

CONDITIONS. Training observers will be given a completed Worksheet 1 (Training Plan), blank Worksheets 2-4, and a stopwatch. Observations will take place at any assigned training site.

STANDARDS. For each item on Worksheets 2-4, "yes" or "no" is checked to indicate whether the actions implied by the item occurred or did not occur. Written comments are made, at a minimum, for each "no" recorded on Worksheets 1-4. Comments are factual recordings of what actually happened. Opinions are clearly labelled as such and are not substituted for factual recordings. Written comments are legible.

7. Provide the observers with the purpose for this training, i.e., to train them to use the Job Aid and Worksheets, to give them dry-run practice before they have to go "wet," and to familiarize you with their aptitudes so that you can maximize team productivity by providing differential assignments, if necessary.

8. Tell the observers what their eventual job duties will be so that they can relate this training to those duties. Make sure that they see that the workshop is really a practice session for what they will be doing as observers.

9. Training observation can be uncomfortable, boring, and difficult. Personnel selected to be training observers will need some motivating to get them started and a lot of attention during the duration of their assignment to keep them going. You and your superiors will have to arrange positive/negative consequences for learning/not learning (and performing/not performing) to be training observers. If there are no consequences, the observers are likely to put very little effort into the task. If this happens, the data you get from them will probably look all right but may bear little relationship to what actually occurred.

10. Provide the group with the workshop schedule.

11. Go through the items in the Observer's Job Aid (or the items you have selected) with the group to ensure that they understand what it is they are to look for, how they will know when it happens or does not happen, and how they should record their observations. Make sure that all the observers have the same interpretation so that there is some standardization across observers. Get feedback from them to see how well you are communicating and to ensure understanding and commonality. This is a long and tiresome session. You may want to break it up by giving some class breaks. If you do give breaks, give them at logical points (between Worksheets, for example) and make sure you tie the pre-break activities to the post-break activities when you start again.

12. After the long session in 11, above, you may consider demonstrating the task if you have found a filmed or televised instructional sequence. Run the film or TV tape, commenting on what you see that relates to the items on the Worksheets. If you do this, one or more rehearsals will be necessary. You will be much more effective if you come off looking like an expert.

13. This should finish day 1. Make sure everyone knows what is going to happen on day 2 and where it is going to happen, what they need to bring, when they should show up, what the uniform requirement is, etc.

14. Day 2 should be used to actually use the Worksheets to observe real training. All of the observers should watch the same training so they can compare their observations later (day 3). During a practice event, where more than one training station is operating at the same time, they should split up so that each participant has one station that he or she observes throughout

the practice event. Tell the observers not to worry about getting all their comments in the right places on the Worksheets. This will come with practice. Have them take blank pages so they can write on the backs of the Worksheets when they do not know where to put their comments during training. It is important to capture the comment. It can always be rewritten in the right place later. Caution your observers to avoid interacting with either the soldiers or the instructors, other than what is necessary to do their job. They should not hide anything (their notes, their purpose for being there, etc.) but they should refer all questions to you. The team should speak through one voice; the analyst's. That will keep the normal adversary relationship that exists between the evaluated and the evaluator from becoming too much of a problem. It will be a problem; the idea is to keep it manageable.

15. If the group does a lot of interacting during the day, with each other or with you, keep track of who seems to be relying on whom so that you know who your stronger observers are. Observers can be strong in two senses; they can be very good observers or they can be very persuasive. Very persuasive observers will only be of value if they are also very good observers. Poor observers who are persuasive are a problem.

16. On the morning of day 3 have each observer consolidate his or her comments onto the worksheets.

17. Go over each item on each Worksheet (Part III of Worksheet 1, Worksheets 2 and 3, and Worksheet 4, if used) comparing the comments of the various members of the group, including your own. Try to bring the group to consensus so that they feel that the final conclusions are a team effort. You will learn a lot about team members during the struggle for consensus that will help you manage the team later.

18. Collect the Worksheets so that you can see for yourself what the observers actually wrote on them. You will find that some observers write a great deal. Other observers write very little; they provide their interpretation of what they saw or, even less, they talk a lot about what they saw but do not write much of this down. If you can select some observers and release others, select those who write a great deal because they will provide the most accurate description of what happened. If you need more observers, try to avoid those who insist on giving you their interpretation (judgment) of what happened. Pick those who write little but are accurate in what they write.

19. That will complete the workshop except for questions and discussion.

SECTION VI

COLLECTING DATA DURING PRACTICE EVENTS

Training observers are data collectors. They do not become data collectors easily, however. They have to be trained. Section V outlines a plan for a workshop in training observation and data collection. This section supplements Section V by going into detail on how to collect data during practice events.

In the development of this system of training program evaluation, well over one hundred training observers were trained during pilot runs against actual ongoing training. Observers were both civilian and military. The civilian observers were in grades from GS3 to GS14. The military observers were in grades from E4 to O5. All of them had trouble with the notion of collecting "data" during practice events. The natural inclination seems to be to "watch" what is going on without recording it in detail.

The problem with this, of course, is that when the practice event is over, all the observer has is a general impression of what happened. Since practice events are the most critical events for training, a TPE should collect more than general impressions about how these events were conducted.

The analyst, evaluator, or data collection team chief should decide, or at least coordinate for his/her team, which types of data to collect and the minimum depth (detail) of that data. Observers on their own tend to count the obvious (e.g., hit/miss, number of students present), but then record additional data which are not recorded by the other observers. Coordination prior to observation maximizes the amount of useful data.

The following rather lengthy example is given here to show the kinds of data available during practice events and how these data can be used to draw conclusions about the training. The example is for an individual training program and is drawn from the armor Training context. Similar data also can be gathered during collective training. An example is not given for collective training, however, because observational constraints vary so much from situation to situation that a useful example would contain so much situation description in it that no one would want to wade through the description to get to the example. The process is the same; simply write down what happened.

Example

Objective 1. Task: To engage and score a "hit" on a single stationary target using a ballistic and a non-ballistic reticle. Condition: Using a Wiley Burst-On-Target Trainer. Given the appropriate fire command. Standard: Score a "hit" on each of two separate engagements with each reticle. Time limit per engagement is 15 seconds.

Objective 2. Task: To engage and score a "hit" on a single moving target using a ballistic and a non-ballistic reticle. Condition: Using a Wiley Burst-On-Target Trainer. Given the appropriate fire command. Standard: Score a "hit" on each of two separate engagements with each reticle. Time limit per engagement is 15 seconds.

Objective 3. Task: To sense and adjust fire given a first round miss using a ballistic and a non-ballistic reticle. Condition: Using a Wiley Burst-On-Target Trainer adjusted to produce a first round miss. Given the appropriate fire commands. Standard: Make the correct sensing and score a second round "hit" on each of two separate engagements with each reticle. Time limit per engagement is 30 seconds.

These three objectives define a practice event wherein each soldier should continue in practice until he or she performs to standard. Performance to standard is required on each of 12 separate engagements.

	Stationary Target	Moving Target	Sense and Adjust
Ballistic Reticle	2 engagements	2 engagements	2 engagements
Non-ballistic Reticle	2 engagements	2 engagements	2 engagements

Consider four separate stations each containing a tank gunnery training device (Wiley) and an assistant instructor, a class size that mandates six soldiers per station, and a schedule that calls for two 50-minute periods for this practice. Observers can collect the following information on each soldier at each station (if there are four observers - one for each station) during the PE:

Number of engagements
For each engagement:
- Engagement type (from observations and instructor comments)
- Time
- Hit or Miss
- Instructor comments

The information can be recorded by station and by soldier on a blank piece of paper. An example of how this might be done is shown in Appendix C.

The information in Appendix C tells us a lot about the practice event that would not otherwise have been known. (Without this information only global impressions of how the event was conducted would have been possible. No detail would have been available for fixing the practice event.) From the data in Appendix C, a number of conclusions about the practice event can be drawn. The kinds of conclusions that can be reached are illustrated below. Notice that the information presented in each of the tables was taken from the data in Appendix C.

1. The practice event did not conform to the lesson plan. Soldiers were supposed to have practiced six different engagement types. A station by engagement type table (Table 1) shows that practice with the non-ballistic reticle was virtually ignored. Only one station attempted all required engagement types.

Table 1

Engagement Types Practiced at Each Station

Engagement Type	Station 1	2	3	4
Non-ballistic Stationary		x		
Non-ballistic Moving		x		x
Non-ballistic Sense/Adjust		x		
Ballistic Stationary		x	x	
Ballistic Moving	x	x	x	x
Ballistic Sense/Adjust	x	x	x	x

2. There was no uniformity among the stations. Each assistant instructor has been allowed to ignore the requirements of the lesson plan and conduct practice in accordance with his set of priorities. This defeats the purpose of a task analysis, criticality judgments, and training/lesson plans. "What is trained" should not be an individual instructor decision. This practice event suggests a lack of supervision by training management (and what happens when the lesson plan is impossible to carry out given time and resource constraints).

3. Not all soldiers practiced. None of the soldiers practiced until they reached the required performance standards. Table 2 shows, by station, the number of soldiers at the station, the number of soldiers who practiced, and the number of soldiers who practiced until they achieved the training standards. One-fourth of the soldiers had no opportunity to practice the tasks and none of the soldiers achieved the standards set forth in the lesson plan.

Table 2

By Station, The Number of Soldiers at the Station,
The Number of Soldiers Who Practiced, and the Number of Soldiers
Who Achieved the Training Standard

	Station 1	2	3	4
No. of soldiers	6	6	6	6
No. of soldiers who practiced	6	3	4	5
No. of soldiers who achieved the training standard	0	0	0	0

4. Table 3 shows the results for the 140 engagements conducted during the practice event. A number of things can be said about the practice event from Table 3.

a. Each soldier was to have received a minimum of twelve practice engagements. Twelve is the minimum because the only way a soldier should have gotten just twelve was to have met the standards for each engagement type on the first try. The average number of engagements per soldier was approximately six (140/26 = 5.8). Assuming all the time allotted for practice was used, this shortfall in the amount of practice actually conducted suggests the need for more practice time.

b. Most of the practice is being given with the ballistic reticle (81%). This may be realistic if the ballistic reticle engagements are harder to master. The data from this practice event do not support that notion, however. This imbalance suggests either a reassessment of the requirements of the practice event or on-site supervision by the principal instructor to ensure compliance with the lesson plan.

c. The time standards appear unrealistic for this stage of training. Only 4% of the engagements met the time standards.

d. The practice event did not develop the skills called for by the lesson plan. Only 3% of the engagements practiced were "successful," that is, met the standards. Soldiers had trouble with range lines on the ballistic reticle, leading targets, and adjusting fire. The practice event clearly did not develop the skills it was designed to develop.

Table 3

Results of the Individual Task Training Practice Event

	Type of Engagement						
	NB Reticle			B Reticle			
	Sta	Mov	S/A	Sta	Mov	S/A	Totals
# Engagements	6	15	6	18	57	38	140
# Engagements:							
Meeting Time Std	0	0	1	1	0	3	5
Below Time Std	6	15	5	17	57	35	135
Meeting Hit Std	5	7	4	7	19	18	60
Below Hit Std	1	8	2	11	38	20	80
"Successful" Eng	0	0	1	1	0	2	4
"Unsuccessful" Eng	6	15	5	17	57	36	136
Reasons for Unsuccessful Engagements:							
Aborted by Instr					3		3
Wrong Range				11	31		42
Wrong Lead		8			32		40
Wrong Sensing						5	5
Wrong Adjustment			2			20	22
Wrong Sight Picture	1						1

5. Note that the "findings" discussed above are not based on subjective impressions, reconstructed memory, "expert" opinion, or observer's judgment. The "data" is objective; the number of engagements were counted, times were taken with a stopwatch, and hit/miss and reasons for "non-success" were recorded from the instructor's comments to the soldiers.

6. Three things should be evident.

a. This is what happened. Efforts to "explain away" these results (a poor crop of soldiers, bad weather, resource constraints, etc.) will not change the fact that the practice event did not proceed according to plan nor attain what was planned. Untrained soldiers are progressing in the program. They are probably unprepared for what is to come. The question now is, "What can be done for these soldiers to bring them to the level they were supposed to have reached during this event?" The answer, in the institutional setting, is the phantom training course conducted at night by unit cadre.

b. This will happen again and again unless something changes. This "something" may be the Tasks, Conditions, and/or Standards, the lesson plan, or the implementation of the lesson plan. Some combination is probably necessary.

c. This "information" would not have been available had the observers not recorded what they saw. If they had used checklists (yes/no, OK/Not OK, GO/NO GO), or had relied on their after-the-fact expert opinion, none of the above would have been possible. This point is being made because most observers, without training and supervised practice, do not know how to record what they see. The natural inclination is to watch it, and then attempt to reconstruct and summarize what is seen. People are not very good at this.

SECTION VII

ANALYZING TEST SCORE DATA

A formal evaluation of the training process for a task really starts when the training is over and the test has been administered. If the test is a good measure of the training objectives, the scores on the test will provide a lot of information on the strong and weak points in the training. Before test scores are used for anything, the "goodness" of the test has to be determined. This involves looking at four aspects of the test itself.

1. Was the test administration all right? Was there any prompting during the test?

2. Was the task that was tested the same as the task that was taught? Did both of these match the training objectives?

3. Were the testing conditions more or less difficult than the training conditions? Did both of these match the training objectives?

4. Were the test standards higher or lower than the training standards? Did both of these match the training objectives?

Information on the test administration will come from Worksheet 4, Testing Observation. Key items are numbers 90-93, Test Instructions, and 103-106, Contamination, from RP 81-16, the Observer's Job Aid. Contamination is the major issue here.

If the soldiers were given hints, prompts, or cues during testing, the test becomes useless as a measure of soldier proficiency, and hence the test results cannot be used in evaluating the effectiveness of the training. Whenever test contamination is present, you can probably safely assume that the soldiers cannot perform the task to standard.

Someone may suggest that the soldiers be retested without the hints, prompts, or cues. That will not help. They have already been tested and will remember much of what is on the test. Retesting will give artificially high GO rates.

You will have to adjust first time GO rate to account for those soldiers who were prompted during the test. Soldiers who received a GO after having been prompted should really be considered NO GOs for TPE purposes. For example:

50 soldiers tested
45 soldiers received GOs
5 received NO GOs - 10% official NO GO rate (minimum)
But 10 of the 45 soldiers who received GOs were prompted
Therefore, the actual NO-GO rate may be (5+10)/50, or 30%

For TPE purposes, then the first time NO GO rate lies somewhere between 10% and 30%. Ten percent is the lower figure because that is the official NO GO rate. Thirty percent is the upper figure because there is no reason to believe the 10 other soldiers would have been GOs without the prompting. For TPE purposes, use the 30% figure.

If there were no test administration problems serious enough to warrant questioning the usefulness of the test as a measure of soldier performance on the tasks just taught, then look to see if a performance deficiency exists. A performance deficiency on any given task may be defined by the first-time NO GO rate on that task. For TPE purposes, a performance deficiency is said to exist whenever the first-time NO GO rate is 20% or greater.

The presence of a performance deficiency may indicate that the training program is not effective in teaching the required skills. But a performance deficiency may be due to the test itself or result from a mismatch between the objectives, the training, and the test. Similarly, the absence of performance deficiencies does not necessarily indicate that the training program is effective; the absence of deficiencies may also have resulted from an inadequate test or a training-test mismatch. Evidence of problems with the test itself appears on Worksheet 4, Testing Observation, and solutions to each problem are specified in Section VI of RP 81-17, the Modifications Job Aid. Evidence of a training-test mismatch comes from comparing information appearing on Worksheets 1, 3, and 4. Guidance on how to handle the various kinds of training-test mismatches is provided below. Solutions to training-test mismatches are also described in Section VI of RP 81-17.

The task that was tested was not the same as the task that was taught. The idea here is that the task itself was different. The soldiers were asked to do something in a different manner than in training. For example, soldiers may be required to perform a task during training, but the test may require soldiers to explain how the task is performed instead of actually performing it.

It is important that the procedures for completing a task during a test be the same as the procedures practiced during training. Some may argue that the test is where the soldier is expected to put it all together, so the exact procedures will differ somewhat from those taught during the practice sessions. Do not be swayed by this. As long as new material or new procedures or new standards or new conditions are being introduced to the soldier, he or she is being trained. When training is over, then testing starts. Keep training and testing clearly separated in your analysis.

Occasionally, the end result is the test item rather than the procedures followed to get to it. For example, when soldiers are taught to disassemble the M16 rifle in training, the focus is on the process. The standard for testing, however, may be a rifle that has been disassembled and reassembled in a certain time period without particular regard to the process. This is legitimate as long as the soldiers practiced to this standard during the final stages of training.

The remedy here is to ensure that:

If the process is being tested, it is the same process as was practiced.

If the end product is being tested, it is the same product realized during the final stages of training.

In your analysis, stick to what you know; avoiding the temptation to go beyond the limits of your data. If the task that was tested was not the same as the task that was taught, no firm statements about the effectiveness of the training program can be made.

The task was not taught. Tasks that have not been taught should not be included in the analysis. The purpose of a training program evaluation is to evaluate the effectiveness of the training program, not the soldier or the adequacy of the front-end analysis.

Tasks may be tested but not taught because a front-end analysis has determined that the soldiers should be proficient in the task from previous training and experience. The test, in this case, will measure the accuracy of that determination.

Tasks may be tested but not taught because the training developer wants to get a check on proficiency levels for future training decisions or baseline development. That is, the task is included for diagnostic purposes.

Tasks not taught can be included in tests for many reasons. They cannot be used to evaluate the training program.

The task was trained but not tested. Tasks that are deemed important enough to include in a training program should also be included in the testing program.

Tasks that are not tested soon lose their emphasis in training and gradually fade out. Since the job of the trainer in criterion-referenced instruction is to teach to the test, tasks not in the test seldom get taught.

Tasks that are not tested should not be included in the analysis.

The test conditions were more difficult than the training conditions. If there was no performance deficiency (no task showed more than a 20% first time NO GO rate), then the soldiers can probably perform under the conditions used in training. But, which conditions are correct? Remember, the conditions being considered here are training and testing conditions, not job performance conditions. Test conditions should not be more difficult than practice conditions.

If there was a performance deficiency (more than a 20% first time NO GO rate), this does not mean that the soldiers can perform to standard under the training conditions. In this case, nothing can be said about the effectiveness of the training process. The soldiers were not tested under the training conditions so you do not know if the program met its goals or not.

The test conditions were less difficult than the training conditions. If there was no performance deficiency, then the soldiers can perform to standard under these less difficult conditions. Nothing can be said about performance under the more difficult conditions used in training. When this mismatch occurs you must determine which conditions are correct, and modify training or testing so that there is a match between training and testing conditions.

If there was a performance deficiency using the less difficult test conditions, the soldiers probably cannot perform to standard under the training conditions either. Since the soldiers were trained under more difficult conditions than those used in testing, and they could not perform to standard under the easier test conditions, the training process probably needs to be modified.

The test standard for this task was higher than the training standard. If there was no performance deficiency, the soldiers can probably perform to the training standard, and the training for this task was probably effective. If there was a performance deficiency, this does not mean that the soldiers can perform to the training standard. In this case, nothing can be said about the effectiveness of the training process. The soldiers were not tested against the training standard so you do not know if the program met its goals or not.

The test standard for this task was lower than the training standard. If there was no performance deficiency, nothing can be said about performance at the higher training standard. If there was a performance deficiency with a lower test standard, the soldiers probably cannot perform to the higher training standard. Since the soldiers' test performance did not indicate that they could perform to a standard lower than they were being trained on, the training process probably needs to be modified.

If the above analyses indicate that there was no hinting, prompting, or cueing going on and that the test task, conditions, and standards, matched the training (and the objectives) task, conditions, and standards, then the resulting scores can be used in determining the effectiveness of the training program.

To use test score data in analyzing the effectiveness of training, first obtain the actual scoresheets filled out by the examiners during the end-of-block tests. Unless there is an urgent need for the original scoresheets elsewhere, you should get the originals. Copies are acceptable if they are made immediately after testing is over and before they have been reviewed by anyone. Be aware however that you may experience some delays in obtaining copies and the copies may be illegible. Arrange for the examiners to label retests so that you can distinguish first test information from retest information.

You will need a method of summarizing the data obtained from the scoresheets. The easiest way to summarize this data is to use a blank copy of the actual test score sheet. You can write whatever test identifying information you want across the top (unit tested, date, etc.). You will need one copy of the test score sheet for the first testing and one for each retest (first retest, second retest, etc.) that you want to keep track of. Always follow at least as far as the first retest.

Post onto these blank copies of the test score sheet the number of soldiers tested, the number receiving GOs and NO GOs, and the percentage receiving NO GOs. Figure 1 shows a blank score sheet for a tracking task. Figures 2 and 3 show how the data can be summarized on a blank score sheet for the original test trial and the first retest.

SCORE SHEET
TURRET TRAINING COURSE
TRACKING EXERCISE

NAME_____ RANK_____ DATE_____

Note: The soldier will position himself in the gunner's seat prior to beginning the test.

START TIME_____ FINISH TIME_____

		GPS		GAS	
Requirement: Track shaded portion of tracking board using the		yes	no	yes	no
Did the soldier: 1. Keep the aiming point on shaded area of boards #1 and #2 without getting off for more than 3 seconds?		___	___	___	___
2. Complete this requirement within 60 seconds?		___	___	___	___
		GO	NOGO	GO	NOGO
Standard: Must have a yes on both items to receive a GO.		___	____	___	____

		GPS		GAS	
Requirement: Track a moving target using the:		yes	no	yes	no
Did the soldier: 1. Track the moving target without getting the aiming point off the target for more than 5 seconds?		___	___	___	___
2. Complete this requirement within 30 seconds?		___	___	___	___
		GO	NOGO	GO	NOGO
Standard: Must have a yes on both items to receive a GO.		___	____	___	____

Overall Standard: Must have a GO on all four requirements to receive an overall GO.

GO	NO GO
___	____

EVALUATOR_____ SOLDIER_____

Figure 1. Blank score sheet - Tracking Exercise.

SCORE SHEET
TURRET TRAINING COURSE
TRACKING EXERCISE

A COMPANY TEST

NAME _____ RANK _____ DATE *15 Sep 81*

Note: The soldier will position himself in the gunner's seat prior to beginning the test. *50 Soldiers Tested*

START TIME *0800* FINISH TIME *1200*

Requirement: Track shaded portion of tracking board using the	GPS yes	GPS no	GAS yes	GAS no
Did the soldier: 1. Keep the aiming point on shaded area of boards #1 and #2 without getting off for more than 3 seconds?	*42*	*8* *16%*	*38*	*12* *24%*
2. Complete this requirement within 60 seconds?	*47*	*3* *6%*	*45*	*5* *10%*
Standard: Must have a yes on both items to receive a GO.	GO *42*	NOGO *8* *16%*	GO *38*	NOGO *12* *24%*

Requirement: Track a moving target using the:	GPS yes	GPS no	GAS yes	GAS no
Did the soldier: 1. Track the moving target without getting the aiming point off the target for more than 5 seconds?	*25*	*25* *50%*	*21*	*29* *58%*
2. Complete this requirement within 30 seconds?	*45*	*5* *10%*	*40*	*10* *20%*
Standard: Must have a yes on both items to receive a GO.	GO *25*	NOGO *25* *50%*	GO *21*	NOGO *29* *58%*

Overall Standard. Must have a GO on all four requirements to receive an overall GO.

GO	NO GO	
20	*30*	*60%*

EVALUATOR _____ SOLDIER _____

Note: One man failed moving target with GPS and passed with GAS so overall number of NO GOs is 29+1=30.

Figure 2. Completed scoresheet for the first test trial - Tracking Exercise.

SCORE SHEET
TURRET TRAINING COURSE
TRACKING EXERCISE

A COMPANY
1st Retest

NAME _____ RANK _____ DATE *16 Sep 87*

NOTE: The soldier will position himself in the gunner's seat prior to beginning the test.

START TIME *0800* FINISH TIME *1200*

Overall NO GO Rate after 1st Retest

Requirement: Track shaded portion of tracking board using the

	GPS yes	GPS no	GAS yes	GAS no
No. of Soldiers Retested --		*8*		*12*
Did the soldier: 1. Keep the aiming point on shaded area of boards #1 and #2 without getting off for more than 3 seconds?		*2%*		*6%*
	7	*1*	*9*	*3*
2. Complete this requirement within 60 seconds?		*0%*		*2%*
	8	*0*	*11*	*1*
	GO	NOGO	GO	NOGO
Standard: Must have a yes on both items to receive a GO.		*2%*		*6%*
	7	*1*	*9*	*3*

Requirement: Track a moving target using the:

	GPS yes	GPS no	GAS yes	GAS no
No. of Soldiers Retested --		*25*		*29*
Did the soldier: 1. Track the moving target without getting the aiming point off the target for more than 5 seconds?		*12%*		*16%*
	19	*6*	*21*	*8*
2. Complete this requirement within 30 seconds?		*4%*		*10%*
	23	*2*	*24*	*5*
	GO	NOGO	GO	NOGO
Standard: Must have a yes on both items to receive a GO.		*12%*		*16%*
	19	*6*	*21*	*8*

Overall Standard: Must have a GO on all four requirements to receive an overall GO.

GO	NO GO	
84%	*16%*	*Overall NO GO Rate after 1st Retest*

EVALUATOR _____ SOLDIER _____

Figure 3. Completed scoresheet for the first retest - Tracking Exercise.

From the summarized data in Figure 2, note that the first test overall NO GO rate is 60%. We will assume that there were no problems with the test itself, so this figure is useable. This high NO GO rate suggests that the training for this task was not effective. The goal of the program was to produce proficient soldiers on the four subtasks. It clearly did not do that. Only the Tracking Board/GPS subtask had an acceptable first time NO GO rate (i.e., 20% or less).

A closer look at Figure 2 indicates that the soldiers made many errors in performing the tracking tasks. They finished in time but their error rates were too high. The soldiers had more trouble with the GAS than with the GPS and experienced greater difficulty with moving targets than with stationary targets.

The information obtained by reviewing the data summarized on the score sheet (Figure 2) can be used in conjunction with other information about the task gathered before and during the delivery of training to specify changes in the training given for that task. For example, data from Worksheet 3 may indicate that the soldiers were not given an adequate demonstration in tracking moving targets or that soldiers did not practice the task to standard when using the GAS. Or you may find that not enough time was allowed for all soldiers to practice each subtask. Such observation leads you to the source of the performance deficiency. In the example above, the large number of errors made in using the GAS may have resulted from soldiers not practicing tracking with the GAS to standard before being tested, which in turn may have resulted because the time allotted for practicing the task was too short. Similarly the lack of an adequate demonstration may have adversely affected proficiency in tracking moving targets.

Analysis of the test score data can identify the tasks and subtasks for which performance deficiencies exist and even point out what aspects of performance (e.g. time or procedural requirements) are deficient. But test data usually cannot be used to identify what did and did not happen during training to produce the deficient performance. To find the causes of a given deficiency, you must carefully review the data recorded on Worksheets 1, 2, and 3 during training and Worksheet 4 during testing. From those worksheets, choose the items that reflect the most likely causes of the observed deficiencies. Then using RP 81-17 recommend changes to eliminate the cause of each performance deficiency.

SECTION VIII

PROCEDURES FOR ANALYZING AND REPORTING TRAINING AND TESTING PROCESS DATA

An analysis of the training process for a task is triggered by a sequence of events. Each of the events (listed below) should have occurred prior to performing the analysis of the training process.

1. The lesson plan has been evaluated and Worksheet #1 has been completed (see Research Product (RP) 81-15 and 81-16).

2. The training has been observed and Worksheets #2 and #3 have been completed (see RP 81-16).

3. The test has been observed and Worksheet #4 has been completed (see RP 81-16).

4. The test score data have been analyzed and no problems with the test or test administration have surfaced, hence, the test scores are considered to be useful (see Section VII in this job aid).

5. The first time NO GO rate, for TPE purposes, is higher than the acceptable minimum. When the purpose of the TPE is to optimize training effectiveness and efficiency rather than obtain some minimum acceptable proficiency level, the NO GO rate does not need to be considered as a condition for performing the analysis.

The analysis should focus on the following seven areas, taking one at a time.

1. Objectives

2. Training Plan

3. Training Site

4. Lecture Events

5. Demonstration Events

6. Practice Events

7. Testing Events

Care must be taken to say something about each area and to report the good as well as the bad. Remember that you are going to have to elicit the support of the training developer and the training deliverer in changing their operation. They will resist change. If all you present is the bad, they will question your objectivity and increase their resistance. As was stated earlier in this job aid, your effectiveness will be enhanced if you are part of an evaluation team consisting of yourself and representatives of the training development and delivery activities.

Your job at this point is to take all the information available, decide what the problem(s) is, and recommend specific modifications to eliminate the problem. Research Product 81-17, A Job Aid for Modifying Ineffective or Inefficient Training Programs, will help in this process.

Every effort should be made to correct any problems at the worker level. Individuals at the directorate and staff levels need to be kept informed about the progress of the evaluation process but it will be counter-productive to inform them of all the problems identified. They should only be asked to intervene when the workers are at an impasse and need someone to decide in favor of one action over another. The tendency to use evaluation data to rate (or assess) people, rather than programs, or as ammunition to force a decision, is overwhelming at times. It is much easier to keep the data from being misused in this way if it is not released beyond the evaluation team. Beware! Everyone will want the data for these very reasons. If they get it, the evaluation program will rapidly be destroyed. Your data may need command protection at the highest level.

Analyzing the Objectives

Evidence for problems with the training objectives will come from your lesson plan analysis and the observer's comments on Worksheet 1. Several items on Worksheets 3 and 4 also pertain to the objectives and may be useful in the analysis.

The training objectives specify the intent of training (what the training activity intends to accomplish; what the expenditure of resources is supposed to "buy" for the Army). The objectives should be clearly stated and should describe what soldiers will be able to do after training that they could not do before training, the conditions under which they will be able to do it, and the standards for acceptable performance. Reasonable agreement on these objectives is needed between the training manager, developer, and deliverer. If there is no agreement on objectives, evaluation is really not possible. You will not be able to get a handle on what it is you are supposed to evaluate.

Use RP 81-15 and Section II, RP 81-17 to analyze the objectives. See Section IV, this Job Aid, for instructions on filling out Worksheet 1 for the observers. If an educational technologist is available, have him or her help with Worksheet 1.

EXAMPLE*

WORKSHEET 1, TRAINING - Part II, Training Objectives

Lesson Title Operator Maintenance, M240 Machinegun

TRAINING OBJECTIVES

Task No	Objective	Source
1	*Task: The soldier will perform operator maintenance on an M240 machinegun.* *Condition: One M240 machinegun per two soldiers.* *Standard: In accordance with TM 9-1005-313-10.*	*Lesson Plan #162509 dated 1 Apr 79*

WORKSHEET 1, TRAINING PLAN - Part III, Training Events

Lesson Title Operator Maintenance, M240 Machinegun

TRAINING EVENTS

Task No	Event Type	Events	Occur Yes	Occur No	Comments
1	*PRAC*	*Disassembly*	✓		*Training stations differed. At some, each soldier did both. At others, some did assembly, some disassembly. No consistent standards.*
1	*PRAC*	*Assembly*	✓		

The Task statement does not specify what the soldier will do following training (see question #1, RP 81-15). "Perform operator maintenance" appears to be specific but will, in fact, permit individual instructor interpretation during the conduct of training (see observer's comments, above). Since you, as an analyst, probably wrote this statement on Worksheet 1 as part of your lesson plan analysis, you probably had trouble trying to figure out just what the task was that would be taught from this lesson plan. If the lesson plan had spelled out the task in detail, you would have spelled it out in detail on Worksheet 1. If operator maintenance is spelled out in the TM and those procedures are the ones that are going to be taught, then the appropriate page and section numbers can be used. Something has to be done to make this more specific.

*In the examples to follow, missing sections or items of Worksheets are assumed to indicate "no problems." These examples are overly negative so that a number of "problems" can be illustrated. Similarly, the report following the examples is more negative than would perhaps be usual.

The Conditions statement does not say enough (see question #3, RP 81-15). It assumes resource constraints that are unfortunate. This is an individual task; sharing a machinegun can lead to "doer-watcher" training or the soldiers making it a two person task. No mention of degraded conditions is made so it has to be assumed that this task will not have to be performed in training while masked. That does not appear to be reasonable.

The Standard is not a standard; it references the TM where procedures are spelled out. Standards need to be expressed in terms of accuracy and time (see question #4, RP 81-15).

Recommendation: Either spell the task elements out or reference the TM by page and section. Check the condition to be sure that it is accurate. Spell the standard out in terms of accuracy (i.e., no errors) and time (i.e., four minutes).

Analyzing the Training Plan

Evidence for problems with the training plan will come from the lesson plan analysis and the observer's comments on Worksheets 1 and 3.

The training (or lesson) plan should specify, in detail, what should happen during the training events. This analysis can be conducted on either of two levels depending on the availability of an educational technologist. If one is available, turn this analysis over to the technologist. Have the technologist a) describe the learning activities in the lesson plan on Worksheet 1, and b) evaluate these activities as builders of the required skills and knowledges. If no technologist is available, do a, above, yourself, using Section IV of this job aid (and Sections III, IV, and V of RP 81-17 for background). You may also try b, following guidelines provided in RP 81-15. If the nature and sequence of events cannot be described in the detail required by Section IV of this job aid, inform the training developer of the problem and go on to find out what is really happening on-the-ground using RP 81-16.

EXAMPLE

WORKSHEET 1, TRAINING PLAN - Part III, Training Events

Lesson Title Operator Maintenance, M240 Machinegun

TRAINING EVENTS

Task No	Event Type	Events	Occur Yes	Occur No	Comments
1	*TERM*	*M240 terminology given to soldiers (no detail in lesson plan).*	✓		*Instructor covered barrel assy, barrel locking latch, barrel release, cover assy, cover latches, feed tray, flash hider, receiver assy, receiver gas cylinder, regulator nut, buffer assy, trigger and frame assy, charger handle.*
1	*DEMO*	*Demo disassembly*	✓		*See Worksheet 3.*
1	*DEMO*	*Demo assembly*		✓	*See Worksheet 3.*
1	*PRAC*	*Disassembly*	✓		*Training stations differed. At some, each soldier did both. At others, some did assembly, some disassembly. No consistent standards.*
1	*PRAC*	*Assembly*	✓		

WORKSHEET 3, TRAINING OBSERVATION

PART II, DEMONSTRATION/PRACTICE

Observations	Yes	No	NA	Comments
38 - Was each subtask demonstrated?		✓		*Missed Task 1 - assembly. Class interrupted.*

The terms that are supposed to be explained to the soldiers were not detailed in the lesson plan. If they were, they should have been listed on Worksheet 1 so the observer could check them off as they were covered (see question #7, RP 81-15). When terms and concepts are not specified in the lesson plan, this frees the instructor to define whatever he/she thinks is necessary. This will not provide standardization across instructional events.

The lesson plan calls for demonstrations but does not spell them out in enough detail to ensure that each demonstration will cover the essential steps and highlight those actions that are difficult or novel to this particular machinegun (see questions #8 and #9, RP 81-15).

Note that the observer listed the terms covered during the TERM event (see Section IV of this job aid for a description of event types). Recommend to the training developer that this list be checked against TM 9-1005-313-10 and, if the list is accurate, it should be added to the lesson plan for the guidance of instructors.

Note that the observer indicated that "assembly" was not demonstrated and referred to Worksheet 3 for why it did not occur. More data on why "assembly" was not demonstrated is covered below under Training Site and Demonstration Events.

Evaluating the Training Site

Evidence for problems with the training site will come from the observer's comments on Worksheet 2.

The training site includes everything that the soldier can be aware of in the place where the training is being conducted. This includes the building and its contents (if any), training equipment and materials, training aids, light, temperature, etc. (see the Training Environment items in RP 81-16). Criteria against which to evaluate the training site can be found in Section II, Worksheet 2, Training Environment, RP 81-16, in Table 1, Training Environment, RP 81-16, and in RP 81-17 (Section VI, Training Environment). A description of the training environment as it was actually encountered on-the-ground during training will be supplied by the training observer on the completed Worksheet 2. Note any discrepancies between the criteria and the environment as you found it during training. The decision on exactly which discrepancies to highlight for the various interested agencies can be made when all the data are in and your report is being formulated.

EXAMPLE

WORKSHEET 2, TRAINING ENVIRONMENT

Environmental Factors	Yes	No	NA	Comments
1 - Were enough instructors present to provide adequate supervision and assistance?		✓		*Only 4 stations operating. Soldiers were standing around waiting.*
19- Was any training left out as the result of an interruption?	✓			*VIP tour came in during demo. Instructor missed "assembly." Not enough time left after tour to pick it up.*

Evidence continues to accumulate from the Worksheets. Part of the reason that some of the soldiers did not practice both subtasks may be that there were not enough assistant instructors available. Recommend that the training developer consider increasing the number of assistant instructors available for this practice event (see Number of Instructors, TRAINING ENVIRONMENT, Section VI, RP 81-17).

The observer has provided the reason for the assembly demonstration being left out of the training. This is an instance of a training problem being caused by factors beyond the control of the training developer and the instructor group. When such instances occur, no action is required to fix the training program. Action may be required, however, to provide extra training to offset the negative effects of such things as interruptions on the soldiers so affected. Extra training may be necessary for this group of soldiers if the missed demonstration and practice have led to poor soldier performance on the end-of-block test (see Distractions, TRAINING ENVIRONMENT, Section VI, RP 81-17).

Evaluating Lecture Events

Evidence for problems with the lecture events will come from the observer's comments on Worksheet 1 and from Worksheet 3.

A lecture event is any training event where the primary activity is the exchange of information. These events are sometimes called conferences or discussions. These events should be listed in Worksheet 1 from the lesson plan analysis or should be recorded in the comments column of Worksheet 1 by the training observer when a lecture event occurs that was not in the lesson plan. Criteria against which to evaluate lecture events can be found in Question #7, Section IV, RP 81-15; TRAINING OBSERVATION: Terminology, Table 2, Section II, RP 81-16; and LECTURE EVENTS, Section VI, RP 81-17. Detail on what actually happened during training will be supplied by the training observer on the completed Worksheet 3. Discrepancies between what should have happened and what actually did happen (from Worksheet 1) and between the criteria and what actually did happen (Worksheet 3) should be noted. Worksheet 1 information impacts on the implementation question (Was the training implemented as planned?) and can be combined with other implementation information for a separate report if desired. Worksheet 3 information can be used to identify problems and, in conjunction with RP 81-17, suggest modifications.

EXAMPLE

WORKSHEET 1, TRAINING PLAN - Part III, Training Events

Lesson Title Operator Maintenance, M240 Machinegun

TRAINING EVENTS

Task No	Event Type	Events	Occur Yes	Occur No	Comments
1	*TERM*	*M240 terminology given to soldiers (no detail in lesson plan).*	✓		*Instructor covered barrel assy, barrel locking latch, barrel release, cover assy, cover latches, feed tray, flash hider, receiver assy, receiver gas cylinder, regulator nut, buffer assy, trigger and frame assy, charger handle.*

WORKSHEET 3, TRAINING OBSERVATION

PART I, LECTURE/CONFERENCE

Observations	Yes	No	NA	Comments
27 - Were soldiers told the training objectives, including tasks, conditions, and standards?		✓		*Not covered. Instr told them that he was going to teach them to assemble/disassemble the M240.*
28 - Were soldiers told why this training is necessary?		✓		
30 - Were soldiers told how this training fits in with previous and future training?		✓		*Did not connect with field firing on next week's training schedule.*
36 - Did the instructor provide the concepts and terminology needed by the soldiers?	✓			*See list on Worksheet #1.*

From the observer's comments, you know that the soldiers were not prepared for this block of instruction by the instructor. He/she did not tell the soldiers what the tasks and subtasks were, the conditions under which they would have to perform the task in the training environment, nor the standard which would be applied to determine if they would get a "GO" or a "NO GO." They were not told why they were being trained on this task at this time and this training was not put into perspective with respect to the other training going on. This information should be given to the soldiers at the beginning of the block of instruction (see Training Objectives and Purpose, LECTURE EVENTS, Section VI, RP 81-17).

During the examination of the lesson plan, while filling out Worksheet 1, you would have determined if these items were required by the plan and if the plan contained guidance for the instructor. If these items were not required, recommend that they be added to the lesson plan. If these items were required, recommend to the training manager that he/she determine the reasons behind this oversight so that, next time, these items will be covered.

Evaluating Demonstration Events

Evidence for problems with demonstration events will come from the observer's comments ¬ Worksheets 1 and 3.

A demonstration event is any training event where the soldiers are being shown how to perform a task or a subtask. These events should be listed in Worksheet 1 from the lesson plan analysis or should be recorded in the comments column of Worksheet 1 by the training observer when a demonstration event occurs that was not in the lesson plan. Criteria against which to evaluate demonstration events can be found in RP 81-16 (Section II, Worksheet 3, Training Observation, and in Table 3, Part II, Demonstration and Practice, items 37-42) and in RP 81-17 (Section VI, Demonstration/Practice). Detail on what actually happened during training will be supplied by the training observer on the completed Worksheet 3. Discrepancies between what should have happened and what actually did happen (from Worksheet 1) and between the criteria and what actually did happen (from Worksheet 3) should be noted. Worksheet 1 information impacts on the implementation question and can be combined with other implementation information for a separate report if desired. Worksheet 3 information can be used to identify problems and, in conjunction with RP 81-17, to suggest modifications.

EXAMPLE

WORKSHEET 1, TRAINING PLAN - Part III, Training Events

Lesson Title Operator Maintenance, M240 Machinegun

TRAINING EVENTS

Task No	Event Type	Events	Occur		Comments
			Yes	No	
1	*DEMO*	*Demo disassembly*	✓		*See Worksheet 3.*
1	*DEMO*	*Demo assembly*		✓	*See Worksheet 3.*

WORKSHEET 3, TRAINING OBSERVATION

PART II, DEMONSTRATION/PRACTICE

Observations	Yes	No	NA	Comments
38 - Was each subtask demonstrated?		✓		*Missed Task 1 - assembly. Class interrupted.*
40 - Could demonstrations be seen and heard by all soldiers?		✓		*I couldn't hear. Soldiers in back of class asking each other what instr said. No problem seeing demo.*
41 - Were demonstrations conducted in small enough steps so that the soldiers could easily follow the instructor's actions?		✓		*Instr went through immediate action but soldiers did not follow very well. Six questions on hand cycling and "safe" during demo. See #50 on this.*

On Worksheet 1, the observer has alerted you to the fact that "assembly" was not covered because the class was interrupted. On Worksheet 3 you see that some of the soldiers had trouble hearing the demonstration of "disassembly." The observer has also indicated that soldiers questioned the "immediate action" part of the demonstration (they had trouble following the instructor). The observer also alerts you to other problems by keying you to item 50 which is a "Practice" item (this is covered in the next example, below).

Demonstrations are not effective for those soldiers who cannot see or hear them and they are ineffective when soldiers cannot follow and understand all the steps (see Demonstrations, DEMONSTRATION/PRACTICE, Section VI, RP 81-17).

Recommend that the training developer look at this demonstration sequence again to ensure that it is as effective as it can be. The evidence from this group of soldiers suggests that it needs to be modified to eliminate the problems found later in practice (covered in the next example, below). If the instructor did not follow the lesson plan guidance for this demonstration, then additional training may be needed to sharpen the teaching skills of the instructor.

Evaluating Practice Events

Evidence for problems with practice events will come from the observer's comments on Worksheets 1 and 3.

The importance of practice in training cannot be overemphasized. Practice is where skills are developed and brought to standard. General information on practice is contained in Section III, RP 81-17, and a separate section (Section VI) in this job aid is devoted to collecting data during practice events. Most of the problems in training are with practice events. It is not uncommon at all to find insufficient practice (too few soldiers reach standard), instructor-specific practice (each instructor decides for himself what should be practiced and to what standard), and even no practice at all (walk-throughs or talk-throughs only). Practice is so important that it is safe to say that tasks not practiced will not be learned and tasks with insufficient practice will not be retained much beyond the end of training for that task. Practice events should be listed in Worksheet 1 from the lesson plan analysis or should be recorded in the comments column of Worksheet 1 by the training observer when a practice event occurs that was not in the lesson plan. Criteria against which to evaluate practice events can be found in RP 81-16 (Section II, Worksheet 3, Training Observation, and in Table 3, Part II, Demonstration and Practice, items 43-53) and in RP 81-17 (Section III and Section VI, Demonstration/Practice). Detail on what actually happened during training will be supplied by the training observer on the completed Worksheet 3. Discrepancies should be noted as in the above evaluations of lecture and demonstration events. Information from Worksheets 1 and 3 will have the same uses as in the above lecture and demonstration evaluations.

EXAMPLE

WORKSHEET 1, TRAINING PLAN - Part III, Training Events

Lesson Title Operator Maintenance, M240 Machinegun

TRAINING EVENTS

Task No	Event Type	Events	Occur Yes	Occur No	Comments
1	*PRAC*	*Disassembly*	✓		*Training stations differed. At some, each soldier did both. At others, some did assembly, some did disassembly. No consistent standards.*
1	*PRAC*	*Assembly*	✓		

WORKSHEET 3, TRAINING OBSERVATION

PART III, DEMONSTRATION/PRACTICE

Observations	Yes	No	NA	Comments
43 - Did all soldiers practice?	✓			*But not to standard.*
47 - Did each soldier practice each subtask to standard, unassisted, before going on to whole task practice?		✓		*27 soldiers did all of Task 1, 12 soldiers assembly only, 19 soldiers disassembly only. See note below.*
49 - Were the soldiers required to meet the overall standard in performing the entire task unassisted?		✓		*Instructors were not applying a standard. Each soldier did it once - right or wrong.*
50 - Did a lot of soldiers have trouble with the same step during practice?	✓			*16 did not hand cycle during immediate action. 43 forgot to put on safe when pulling charging handle to rear.*
55 - Was feedback provided as soon as possible following actions?		✓		*Errors pointed out when subtask was completed.*
57 - Was faulty performance identified and corrected?		✓		*Errors pointed out but no second trials were allowed so soldiers could get it right one time.*
PART III, GENERAL OBSERVATIONS				
70 - Were the soldiers sometimes standing around with nothing to do during training?	✓			*Only 4 stations. Most soldiers waiting for half the period or more.*

Note:	Station	# Soldiers	Practiced: Assembly	Practiced: Disassembly	# To Standard
	1	14	𝍸 𝍸 ||||	𝍸 𝍸 𝍸 ||||	
	2	15	𝍸 𝍸 ||||	𝍸 𝍸 𝍸 ||	*No standards applied*
	3	14	𝍸 𝍸 𝍸 ||	𝍸 𝍸 𝍸	
	4	15	𝍸 𝍸 ||||	𝍸 𝍸 𝍸	

From the lesson plan analysis (Worksheet 1) you have already determined that the lesson plan does not specify how the practice events are to be conducted, i.e., what each soldier will do, the subtask and task standards to be reached, the conditions that need to be set up for each soldier, what the assistant instructors should look for during practice, guidance for the assistant instructors in how to remediate particular soldier errors, etc. (see questions #10-#13, RP 81-15). Remember, if this information was in the lesson plan, it should have been outlined for the observer(s) on Worksheet 1.

You also have additional information on the practice event. The observer has indicated that 27 soldiers practiced both assembly and disassembly while 31 only practiced half the task (12 practiced assembly and 19 practiced disassembly). In addition, none of the assistant instructors were applying a consistent standard and the soldiers were not being required to perform the task to standard, each soldier getting just one trial whether or not performance was satisfactory.

Regarding feedback from instructor to soldier, you know that the instructors were not stopping soldiers when they made an error. They were waiting until each soldier had completed a subtask before telling him/her what errors were performed. This is more like a testing technique than a training technique and should be discouraged (see Section IV, FEEDBACK, RP 81-17). The observer's comments in item 57 indicate that soldiers were not being required to perform the task a second time when they made errors the first time. Soldiers should be required to correct their own faulty performance before going on in training (see Feedback, DEMONSTRATION/PRACTICE, Section VI, RP 81-17).

The observer has also provided some diagnostic information in items 41 and 50 that may be of interest to the training developer. Six soldiers had problems with "charging handle" and "safe" during the demonstration. During the practice event, 16 soldiers had problems with the "charging handle" and 43 with "safe." The training developer should be alerted to the fact that this part of the instruction is not very effective (see "Many Soldiers Had Trouble With The Same Step During Practice," DEMONSTRATION/PRACTICE, Section VI, RP 81-17).

Given this information from your lesson plan analysis and the observer(s) comments, and using Section III, PRACTICE, RP 81-17 for background, you can make the above recommendations to the training developer. You can also suggest that this lesson be revised to require that each soldier demonstrate proficiency

and to include a prescription (trainer and soldier activities) designed to accomplish proficiency. Some of the problems with this practice event appear to lie with inadequate instructor training and supervision and some with inadequate training design. Treat the design problems as primary. Good training design is essential and the harder of the two to "fix" up. Instructor training and supervision problems are likely to be very sensitive. Tread cautiously in this area by keeping this discussion at a low "worker" level.

Evaluation of Testing Events

Evidence for problems with testing events will come from the observer's comments on Worksheets 1 and 4.

There are three kinds of tests to be concerned with here. The end-of-block test is given almost immediately after training on a task (or related set of tasks) is over. Usually there are 24 hours or less between the end of training and the test. This kind of test contains the most information for TPE purposes. It tells the soldiers and the trainers what skills and knowledges the soldiers have learned and it tells the trainers how successful the training program has been in achieving its objectives. This kind of test contains the fewest number of uncontrolled factors that will intervene to cloud the direct relationship between training and proficiency. Tests covering several blocks of instruction given periodically throughout a course will tell the soldiers and the trainers what proficiencies the soldiers have but will not control for non-program effects (outside practice, other training, peer instruction). These tests are useful for TPE purposes if the extent to which these non-program effects occurred can be estimated. Since these estimates can seldom be made with any rigor, these tests are of limited usefulness to TPE. End-of-course tests are usually given for the purpose of certifying soldiers. The notion here is that one has to be proficient in certain tasks to receive a graduation certificate, award of an MOS, additional skill identifier, etc. These tests have the least usefulness from a TPE standpoint. Non-program effects are at a maximum in this kind of test.

You will, of course, have to use what the training plan calls for in the way of testing events. Some will argue that the end-of-course test is the only true measure of training program effectiveness. In a sense they are right. If the program does not produce trained soldiers, it is not effective. The evaluator, however, must ask, "What program produced these results?" If the program goals are not clearly specified, with each training event being clearly designed to bring soldiers to each enabling objective (in sequence) and terminal objective, and with the training events following the training design each time the event is given (no phantom training -- outside practice, peer instruction, etc.), the evaluator can only argue that what the program produced this time may not be what it will produce next time. The system is unstable and will produce unstable results. Knowing that a program has produced an acceptable (or unacceptable) product is only of use to a training manager if he or she is reasonably certain that it is likely to happen again the next time the training program is given.

Testing events should be listed in Worksheet 1 from the lesson plan analysis or should be recorded in the comments column of Worksheet 1 by the training observer when a testing event occurs that was not in the lesson plan. Criteria against which to evaluate testing events can be found in RP 81-16 (Section II, Testing Observation, and in Table 5, Testing Observation, items 90-109) and in RP 81-17 (Section VI, Testing). Detail on what actually happened during testing will be supplied by the training observer on the completed Worksheet 4.

See Section VII in this job aid for guidance in analyzing test scores.

EXAMPLE

BASIC ARMOR TEST

NO GO's added - See #106 on Worksheet 4	GO	NO GO 1st	NO GO 2d	NO GO 3d	NO GO 4th	REMARKS *NO GO Rates Official*	REMARKS *NO GO Rates Adjusted*
STATION #1 M240 MACHINEGUN							
REQ 1 Clear M240 *+12 NO GO*	~~Ø~~ 38	~~Ø~~ 20				*14%*	*34%*
REQ 2 Disassemble	*53*	*5*				*9%*	*9%*
REQ 3 Reassemble *+ 8 NO GO*	~~4Ø~~ 41	~~Ø~~ 17				*16%*	*29%*
REQ 4 Function Check *+ 12 NO GO*	~~5~~1 39	~~7~~ 19				*12%*	*33%*
REQ 5 Load the M240	*57*	*1*				*2%*	*2%*
REQ 6 Immediate Action *+ 11 NO GO*	~~47~~ 36	~~11~~ 22				*19%*	*38%*

WORKSHEET 4, TESTING OBSERVATION

Observations	Yes	No	NA	Comments
93 - Were pass/fail standards clearly explained such that soldiers would know when they performed correctly?	✓			*Read from test instruction sheet. No questions from soldiers.*
94 - Did the test occur soon after the completion of training?	✓			*Immediately after final practice event.*
98 - Were the standards specified in the training objectives used to score test performance?	✓			*Examiners did not have stopwatches and tested two soldiers at a time. Time standards not rigid. See #104, #105, #106.*
104 - Did the examiner help the soldiers in any way during the test?	✓			*# Soldiers over time but given GO* *REQ STA 1 STA 2* *1* *2* *3 ---------- 2 --------- 1* *4 ---------- 1* *5* *6 ---------- 2 --------- 1*
105 - Did the examiners apply the standards specified in the training objectives consistently and objectively?		✓		
106 - Did the soldiers receive artificial cues or help during the test?	✓			*# Soldiers given cues* *REQ STA 1 STA 2* *1 ---------- 10 --------- 2* *2* *3 ---------- 4 --------- 1* *4 ---------- 8 --------- 3* *5* *6 ---------- 6 --------- 2*

The official number of first time NO GOs should be listed on the test score sheet as in the example above. These are the numbers to the left under the "GO" and "1st NO GO" columns. The official percentage of the soldiers who were first time NO GO is recorded in the REMARKS column. Note that all of these percentages are less than 20%. This suggests that there is little need for a rigorous analysis of the M240 training block. However, the observer(s) has reported some problems with test administration on Worksheet 4. Some soldiers who received "GOs" were given cues during testing and others were not required to meet time standards (note that instructors did not have stopwatches). The observer has provided counts of these in items #104 and #106. Note that two soldiers exceeded the time limit on REQ 3 at Station 1, etc. Also, ten soldiers were given cues during REQ 1 at Station 1, etc. The soldiers who exceeded the time limits and the soldiers who were given cues are considered NO GOs for TPE purposes (see Section VII in this job aid). These soldiers have been added to the official NO GO counts on the test score sheet, e.g., the 12 soldiers who were given cues on REQ 1 but were considered "GO" officially have been added to the NO GO count for REQ 1. This addition has increased the "NO GO" percentage of 14% (official) to 34% (adjusted). Similar adjustments have been made in the data for REQ 3, 4, and 6. Now it appears that an analysis of this block is warranted since four of the six subtasks had adjusted first time NO GO rates of 20% or more.

Reporting the Results of the TPE to Training Developers/Deliverers.

When reporting the results of a TPE to the training developer and deliverer, remember to cover each of the seven items at the beginning of this section. Two other very important things to remember are to balance the report with positive, as well as the negative, comments, and to focus on those few negative comments that will have the greatest impact on the training program. You can start by making a list of the things you might say (the example, above, is continued here).

	Positive	Negative
Objectives:	Lead to performance oriented training.	Task statement does not specify what the soldier will do following training.
	Are actually spelled out in the body of the lesson plan (but are hard to follow in that form).	Condition statement does not say enough.
		Standard is not a standard.
Training Plan:	Follows the usually accepted model for training (lecture, demonstration, practice, test).	Required terms are not detailed in the lesson plan.
		Demonstration procedures are not spelled out.
		Procedures for conducting practice events are not spelled out.

	Positive	Negative
Training Site:	Training equipment, materials, lighting, noise, etc., were all right (no negative comments by observer).	Not enough assistant instructors available. Class interrupted.
Lecture Events:	Terms needed by soldiers given to them by instructor.	Objectives and reason for training not given to soldiers.
Demonstration Events:		Some soldiers had trouble hearing. Soldiers had trouble following "immediate action." "Hand cycling" and "safe" led to questions.
Practice Events:	All soldiers practiced (no walk-throughs or talk-throughs substituted for hands-on practice).	All soldiers did not practice all subtasks. Soldiers were not required to perform to standard. Feedback to soldiers delayed to end of practice trial. Soldiers had problems with "charging handle" and "safe."
Testing Events:	Instructions read to soldiers from lesson plan. Pass/fail standards read to soldiers. All subtasks were tested.	Standards not enforced. Some soldiers were given cues during testing.

An examination of the list above suggests that the major problem with this block of instruction is the training prescription; the objectives are not clearly spelled out, required terms are not detailed, and procedures for conducting the demonstration and practice events are not spelled out. Instructors are training from a lesson plan that does not provide much guidance. If the lesson plan is modified to add this guidance via a training prescription, problems with the lecture, demonstration, and practice events may clear up. In any event, criticizing the instructors at this point would be counterproductive. If, after the lesson plan has been modified, these problems persist, then training management should be alerted to the need for additional instructor training and supervision.

In addition, there are two problems with test administration; standards are not being enforced and examiners are providing cues to soldiers. Recommend that examiners receive additional training and supervision in applying standards consistently and avoiding cueing.

From this example, then, a report like the following could be prepared for the training developer and deliverer. An abbreviated version, leaving out much of the detail, could be prepared for the command element.

OBJECTIVES.* The task statement does not specify what the soldier will do following training. Current wording does not provide clear guidance regarding the goal of this training (lesson plan analysis, questions #1 and #2, RP 81-15). The conditions statement does not clearly spell out the conditions under which the task must be performed (lesson plan analysis, question #3, RP 81-15). The standard does not provide the instructional staff with immediate guidance regarding what constitutes a "GO" and a "NO GO" (lesson plan analysis, questions #4-#6, RP 81-15). Recommend that the training objective be rewritten following the guidance in Section II, RP 81-17.

TRAINING PLAN. The terms needed by the soldiers for performance of this task have been left out of the lesson plan (lesson plan analysis, question #7, RP 81-15). The plan calls for each subtask to be demonstrated but does not provide guidance for these demonstrations that covers the essential steps and alerts the instructors to difficult or novel actions that should be emphasized (lesson plan analysis, questions #8 and #9, RP 81-15). Practice events are required by the lesson plan for each subtask but detailed guidance for instructors on how to conduct these events, what soldier errors to look for during practice, and how to correct faulty performance, is missing (lesson plan analysis, questions #10-#13, RP 81-15). Recommend that a detailed training prescription be written for this training that spells out, in detail, procedures for conducting the lecture, demonstration, and practice events. Guidance for this can be found in Section IV, RP 81-15, and Sections II-VII, RP 81-17.

TRAINING SITE. Problems with the training site were minimal. There was enough training equipment to go around (item 4, RP 81-16), all training equipment worked properly (item 5, RP 81-16), the physical layout of the training site made it easy to see the demonstrations (item 10, RP 81-16), the site was reasonably quiet (items 12 and 13, RP 81-16), there was enough light for the soldiers to see what was going on (item 14, RP 81-16), and the weather was reasonable (items 21 and 22, RP 81-16). Soldiers were observed standing around waiting during practice (item 1, Worksheet 2), however, which suggests the need for additional instructors. This problem may yield to a revised training plan that specifies the procedures for conducting the practice event. See Number of Instructors, TRAINING ENVIRONMENT, Section VI, RP 81-17.

The "assembly" subtask demonstration was left out of training because of a VIP tour interruption (item 19, Worksheet 2). Nineteen soldiers did not get a chance to practice "assembly" (item 47, Worksheet 2) and seventeen soldiers

*Information in parentheses would not be reported. It is included so that you can see the basis for the comment.

(29% of this group) were either a "NO GO" on the test (test score sheet), were given a "GO" despite their exceeding the time standard (item 104, Worksheet 4), or were given cues during the requirement (item 106, Worksheet 4). Remedial training for this group on this subtask may be beneficial. See Distractions, TRAINING ENVIRONMENT, Section VI, RP 81-17.

LECTURE EVENTS. Instructors followed the lesson plan (item 63, Worksheet 3) as best they could given the vague prescription for these events. The primary instructor filled in where the lesson plan was vague and provided the soldiers with the terminology from TM 9-1005-313-10 (Worksheet 1). The primary instructor did not provide the soldiers with a clear description of the training objective (item 27, Worksheet 3), did not indicate why this training is necessary now (item 28, Worksheet 3), and did not indicate how this training fits in with previous and future training (item 30, Worksheet 3). These problems may yield to a revised training plan that specifies the procedures for conducting the lecture event. See Training Objectives and Purpose, LECTURE EVENTS, Section VI, RP 81-17.

DEMONSTRATION EVENTS. All subtasks were demonstrated with the exception of the "assembly" subtask (item 38, Worksheet 3). Some soldiers had difficulty hearing the demonstrations (item 40, Worksheet 3). Instructors could usefully be reminded to ensure that all soldiers can hear adequately. Some soldiers had trouble following "hand cycling" and "safe" during the demonstrations (item 41, Worksheet 3). These problems may yield to a revised training plan that specifies the procedures for conducting the demonstration events. See Demonstrations, DEMONSTRATION/PRACTICE, Section VI, RP 81-17.

PRACTICE EVENTS. All soldiers received hands-on practice (item 43. Worksheet 3). Twenty-seven soldiers practiced all the subtasks, 12 practiced "assembly" only, and 19 practiced "disassembly" only (item 47, Worksheet 3). No data is available on the extent to which soldiers were reaching the standard since the instructors were not applying the standard during practice (item 49, Worksheet 3). Two steps in performing this task proved difficult for a number of soldiers. Sixteen did not "hand cycle" during immediate action and 43 forgot to put the weapon on safe when pulling the charging handle to the rear (item 50, Worksheet 3).

Instructors were pointing out soldier errors when the task was completed instead of when the error occurred (item 55, Worksheet 3). Faulty performance was identified but not corrected since no soldier had a chance to try the task again to see if he/she could perform without the error (items 49 and 57, Worksheet 3). There seems to have been a resource problem with this administration of the lesson in that only four assistant instructors were available (item 70, Worksheet 3). This is only about half of the number of assistant instructors needed for the number of soldiers being trained. A revised training plan that presents clear guidance to the instructors on how to conduct this practice event, on what to look for during soldier practice, on how to identify and correct faulty performance, and specifies resource requirements and tradeoffs between time allocation and number of instructional personnel may eliminate many of these practice event problems. See Practice and Feedback under DEMONSTRATION/PRACTICE, Section VI, RP 81-17. Additional guidance is contained in Section III, PRACTICE, and Section IV, FEEDBACK, in RP 81-17.

TESTING EVENTS. The test for this block was administered satisfactorily but it was not scored in a consistent manner. Instructions were read directly from the lesson plan (item 90, RP 81-16), soldiers had no questions on what the tasks were (item 91, RP 81-16), soldiers had no questions on the standards (item 93, RP 81-16), the test occurred soon after training to minimize forgetting (item 94, RP 81-16), all tasks were tested (item 95, RP 81-16), and examining personnel were different than instructional personnel (item 103, RP 81-16). When it came to scoring soldier performance, examiners did not have stopwatches and tested two soldiers at a time (item 98, Worksheet 4). This precluded the use of rigid time standards. Seven soldiers were given a "GO" when they had exceeded the specified time standard (item 104, Worksheet 4). Thirty-six soldiers were given hints, prompts, or cues during the test (item 106, Worksheet 4). We recommend that test examiners be given additional training and supervision in how to score soldier performance in a consistent manner. See Contamination, TESTING, Section VI, RP 81-17.

SECTION IX

DO'S AND DON'TS IN CONDUCTING A TPE

As the training analyst there are certain things that you should and should not do as you plan, conduct, and analyze the results of the training program evaluation. Some of these have already been mentioned in other sections of this job aid but are reemphasized here because of their importance to the success of the overall evaluation effort.

In the early planning stages of the training program evaluation, a number of organizations may be involved. Each organization will be vying to influence the evaluation in a direction compatible with its own interests. The interests of some organizations will coincide with the purposes of training evaluation and others will not. You must take an active role in the early planning stages to ensure that provisions are made for collecting the data you need to evaluate the training program. Anything that hinders you in collecting the necessary data is a constraint; you should try to keep constraints to a minimum. One such constraint is the introduction of data collection requirements that are not relevant to the task of evaluating training. When nonessential data collection requirements are introduced, the planning and evaluation processes are complicated and the energies of the training observers are diverted to the collection of data elements that are of little use in evaluating training. For this reason, you should actively oppose the efforts of any organization to introduce data requirements that are not in line with the purpose of evaluating the training program.

Section III of this job aid lists some items you will need in conducting the TPE and some constraints that may affect the conduct of the TPE. Among the needs listed in Section III is the need for well-trained, highly motivated training observers to collect the TPE data. If you do not have enough observers, the amount of information that you will be able to provide will be reduced accordingly. You should make it very clear to the sponsor of the evaluation what you can and cannot do, depending on the availability of training observers. Emphasize that you will need the observers well in advance to allow plenty of time for training and selecting your data collectors before training begins.

Arrange to have the observers working for you directly. Among the advantages of having the data collectors report directly to you are: (1) you can schedule which observers collect which data and therefore be constantly aware of who is collecting what data and when and where it is being collected; (2) your daily contact with the observers will provide additional information about who is using the TPE worksheets well and who needs additional training; (3) since the observers are reporting to you directly, you are more likely to receive the completed TPE worksheets promptly and you may receive additional information in talking to the observers that was not recorded on the worksheets; and (4) you are in position to influence the conditions under which the observers work and thus act to minimize the factors that may have an adverse effect on observer motivation.

The success or failure of the training program evaluation that you conduct will depend to a large extent on the ability, skill and motivation of the individuals who will be observing the training and testing and collecting the TPE data. You are strongly urged to conduct a TPE workshop for the observers (see Section V of this research product) prior to the beginning of the training program. As an absolute minimum, all observers should have had supervised practice in using the worksheets prior to any involvement in an actual evaluation.

In order to select the individuals who will make the best training observers, you should watch the observers as they collect data during the practice portion of the TPE workshop, and review their completed worksheets to determine how well they recorded the required observations. You will find that some individuals either do not attend to the class being conducted or attend but record very little useful information on the TPE worksheets. Such persons make poor observers and should not be used during the actual program evaluation unless no one else is available. Other persons will attend to the class very intently and become so wrapped up in what is being taught (i.e., the subject matter of the class) that they pay little attention to how training is conducted. If they record any comments, the comments will be about the technical content of the class and the training and testing processes will be ignored for the most part. Subject matter experts often respond in this manner when asked to observe training. For this reason, subject matter experts typically do not make very good TPE observers. Finally, there are those select few who watch training closely and record many useful objective comments in response to the items listed on the TPE worksheets. These are the persons that you should select to collect the bulk of the TPE data.

In the workshop, you should try to motivate the observers by explaining the importance of training evaluation and by stressing the role of the observer in collecting the necessary data for the evaluation. You should also prepare the observers for the cool reception that they might receive from instructional personnel by explaining that training evaluators are often perceived as adversaries by the training deliverer. In planning the evaluation, you should keep the observers' interests in mind when making decisions that will impact on the observers. For example, you should avoid over-committing your training observers by limiting the number of data elements that they are required to collect at any one time and the number of hours of instruction that they will observe on any given day. In addition the data collection plan should make provisions for the well-being and comfort of the data collectors. Such provisions might include transportation to and from the training site, messing facilities near the training site and the opportunity to use them, and a temporary shelter where they may go from time to time to escape the elements when training is conducted outside in inclement weather (since they may very well be out in the inclement weather much longer than any of the instructors or soldiers).

In planning and conducting an evaluation, you will be coordinating your activities with representatives of several different groups. These include other evaluation agencies, the organization that is sponsoring your involvement in the evaluation, and the group responsible for developing and perhaps delivering the training program. Other than the sponsoring organization, your most critical association is with the group that develops and delivers the instruction. It is important that you establish as much rapport as possible with this group early in the planning process. This may be difficult since training

developers and deliverers often perceive training evaluation as an annoyance and perhaps even a threat. There are things you can say and do that can reduce the extent to which the evaluation is perceived as a threat. For example, you can show the training developers and deliverers the worksheets you will be using to evaluate training and tell them they may inspect the completed worksheets if they wish. Explain to the instructors that they are not personally being evaluated, but that it is the training program that is being evaluated. Explain to the training developers that you would like to work with them to obtain the best program possible, that they will be the first to see any criticism of the program or recommendations for program changes, and that the data that you collect will not be given to persons or organizations that would use it to "hang them." All of this requires that you interact directly with the training developer and deliverer. It is especially important that you establish an open line of communications with a person on the training development team at the level where the training is designed and changes in the program are instituted; you should establish this vital communications link as early in the program as possible, preferably during the early stages of program development. In this way your recommendations for changes in the training program will be sure to reach the persons who are responsible for making the changes in a timely manner. When changes are made in the training program, you can obtain information about the changes from this same individual. Do not rely on the sponsor of the evaluation to act as a go-between between you and the program change agent.

Arrangement for distribution of the various data elements should be made during the planning for the program evaluation. Make it clear before evaluation begins what data will be provided to the sponsor, and when in relation to the program they will be provided.

You may wish to share data with other evaluation agencies, but do not enter into any data sharing agreements without first consulting the organization responsible for developing and delivering the training program and the sponsor of the evaluation. If you are sharing the raw data with other agencies, arrange to get what you need from the data first, make copies for the requesting organization, and keep the original data on file for ease of reference.

A carefully planned evaluation following the guidance in the paragraphs above and in Section III of this report will help to ensure the success of your training program evaluation effort. But it is only half of the ball game. The training program evaluation must still be carried out during the program implementation. One of your tasks as the training analyst is to keep the evaluation on track, seeing to it that the direction and intent of the evaluation is not compromised. As the training program gets underway, some of the evaluation agencies may decide that they need certain additional data and seek to introduce additional data collection instruments for the observers to complete. Resist attempts to have your observers complete additional data collection forms. New data collection instruments should be introduced only when it can be shown that the data is needed to provide answers to the sponsor's questions that would otherwise go unanswered. If additional data collection instruments are introduced, you may have to forego collecting some other data that you had planned to collect so as not to overload the observers.

You should provide the data and other information that you agreed to provide to the sponsoring agency according to the schedule that was mutually agreed upon during planning. To enable you to do this, the sponsoring agency must provide you with the material and personnel resources that they agreed to provide. If the sponsoring agency decides in the middle of the evaluation that more data are needed, then you must ensure that the resources necessary to collect that data will be made available.

Occasionally you may find that the instructors delivering the training or their supervisors start to look upon the training observers as training distractors after training has been going on for a short time and try to restrict the observers' access to some training or testing events. This should not occur if you have properly trained the observers and have been up-front with the training deliverers letting them know exactly what the observers will be doing and the use to which the data will be put. If the instructors do attempt to restrict access to the training or testing events, you must take immediate action or important data will be lost. You should first try to find out why the observers have been restricted and work something out with the training deliverer. If no agreement can be reached then you may have to involve the sponsor of the evaluation to bring pressure upon the training deliverer.

If the training observers are working for you directly as recommended, the completed worksheets will be returned to you personally by the observers shortly after the completion of each block of instruction. After receiving the worksheets for two or three blocks of instruction, you may notice that while some observers provide detailed information about the training that they observed, others observing the same training may have little more than a check mark beside each worksheet item. When you find that observers are providing little useful information, you should investigate to determine the nature of the problem. You may find in talking with the observer that he or she can tell you about the class in detail, but simply failed to record the details on the worksheet. In this case you must encourage the observer to record the necessary data. If the observer cannot provide much information about the class, you may have to monitor that observer's activities to isolate the problem. The observer may require additional training in TPE or observation techniques, or lack the motivation to carefully observe training and record the required data. If the problems with the observer cannot be solved, the observer may have to be replaced.

Even when the data provided by the observers is entirely satisfactory, it is useful for you to monitor some blocks of instruction or portions of those blocks in order to get a first-hand view of the conduct of the training program. Your observations may identify some training problems that the observers missed or failed to record. Your presence during the training also indicates to the observers and instructors that you have more than a passing interest in the training program and the evaluation activities of the observers. In your visits to the training site, ask the observers if they are encountering any problems and talk to the instructors or their supervisors, if possible, about how training is going. The information you gain by visiting the training sites and monitoring training will often prove invaluable.

As the data are received on each block of instruction you will summarize and analyze the data, providing recommendations for changes in the training program to the training developer and information about the effectiveness and efficiency of the program to the sponsor of the evaluation. Suggestions for changes in the training program should be submitted (within 24 hours of the time that the block of instruction was conducted) directly to the person on the training development team responsible for making program changes. Your suggestions to the training developer should be in the form of a short memorandum that clearly identifies the block of instruction observed, the training problems observed, and your recommendations for correcting the problems. The training developer to whom the suggestions are submitted should then check into the possibility of making the recommended changes and inform you which changes were made and which were not. The information provided to the sponsor of the evaluation regarding the effectiveness and efficiency of the training program will be based on the same data, but the sponsor may not need or want detailed information on each block of instruction. Feedback to the sponsor may take the form of short reports identifying recurring problems, submitted at regular intervals as the program is being conducted and/or a final report submitted on completion of the training program.

The conclusions that you draw and the recommendations that you make during an evaluation can be no better than the data upon which they are based. Although the TPE system is designed to provide accurate objective data when used correctly, it can lead to erroneous conclusions if misused. If you as the analyst omit many of the more important items from the worksheets or allow your observers to use the TPE worksheets merely as checklists without making any comments, the data is likely to paint a rosy but inaccurate picture of the effectiveness of the training program. If the observers hesitate to record what they observe because they are inhibited by the instructors or fear repercussions from higher authorities, the usefulness of the data is greatly diminished. Similarly if you temper the conclusions that you draw about the training program because you do not want to ruffle the feathers of some individual or agency, your effectiveness as a training analyst is greatly reduced. The objectivity of both the observer and the analyst must be maintained in order for TPE to work. For this, you will need unqualified support at command level.

APPENDIX A

WORKSHEET 1, TRAINING PLAN - Part I, Equipment and Materials

Class/Lesson Title_____

Training Observer_____

1. List under the appropriate heading below the training aids, equipment, and materials that will be used during this lesson.

Training Equipment	Training Materials	Training Aids

2. List any job aids that will be provided to soldiers and used during this training.

3. From the lesson plan, briefly describe the characteristics required of the training site. Include how the site should be prepared for training.

4. List safety precautions that should be emphasized and followed during this training.

WORKSHEET 1, TRAINING PLAN - Part II, Training Objectives

Lesson Title_____

TRAINING OBJECTIVES

Task No	Objective	Source

WORKSHEET 1, TRAINING PLAN - Part III, Training Events

Lesson Title_____

TRAINING EVENTS

Task No	Event Type	Events	Occur		Comments
			Yes	No	

APPENDIX B

DEVELOPING QUESTIONNAIRES FOR SOLDIERS AND INSTRUCTORS

Occasionally you will be called upon to evaluate training but will have neither the time nor the resources to follow the procedures recommended in this job aid. In lieu of conducting a rigorous TPE or as a supplement to the procedures outlined in this job aid, you may wish to evaluate training by questioning soldiers and/or instructors concerning their training experiences or their perceptions about the training. If you decide to use this approach, you will need to construct questionnaires, so that the same questions are asked of each soldier or instructor. Although it may seem a simple matter to write a few questions for soldiers to answer about the quality of the training that they received, developing a questionnaire that provides valid, meaningful data is a rather difficult task. If you find it necessary to develop a questionnaire for training evaluation purposes, it is suggested that you seek technical assistance from someone who has expertise in designing questionnaires. If technical assistance is not available, the guidance in this Appendix should keep you from making any serious mistakes in developing questionnaires.

Do not ask soldiers or instructors for their general impressions, or opinions about training. Do not ask soldiers to rate the quality of the training that they received. These kinds of questions do not provide the kinds of data that you will need as an evaluator. Ask only questions that the respondent (the person filling out the questionnaire) has a basis for answering -- a basis resting in his or her recent experiences during the training program. If both soldiers and instructors are questioned, the questions should be different for the two groups.

The guidance included below will help you construct questionnaires when you must use the questionnaire method. Following the guidance in this Appendix will help you construct better questionnaires, but even good questionnaires are unlikely to provide data that are comparable to that provided by other methods described in this report. Therefore, questionnaire methods should only be used as a last resort and the resulting data interpreted with great care.

Questioning Soldiers About the Formal Instruction They Received

If you cannot put an observer at a training event but need data on the conduct of that event, you can question the soldiers who were present for the training. You can use their memories to get information on what happened. Remember that their memories are going to be faulty. You will have to sample several (but not all) soldiers to get a stable answer to any question. It is not necessary to ask each soldier sampled the same set of questions.

You will want to construct most of these questions so that they can be answered "yes" or "no." Do not expect the soldiers to give you more detailed answers, from memory, than you expect from your observer, on-the-spot. Ask questions in words and about experiences that have meaning for them.

Do not ask too many questions of any soldier. Ten to 15 questions is plenty. If you have more than that, get two samples of soldiers. Give some questions to one sample and the remaining questions to the other sample.

Some examples of the kinds of questions soldiers can be asked are below. Note that these questions parallel the items in RP 81-16.

Were instructors available when you needed them?

Did you have a _____ (tool, handout, piece of equipment) when you needed it?

Did you have your own copy of _____ (handout)?

Did you have any trouble _____ (hearing, seeing)?

Do you know what _____ (a term or concept) means?

Was the _____ (task, subtask, step) demonstrated for you by the instructor?

Could you _____ (see, hear, understand) the demonstration of _____ (task, subtask, step)?

Did you get a chance to practice the _____ (task, subtask, step)?

Did an assistant instructor watch you during practice, correcting your errors as you went along?

Questioning Soldiers About Their Proficiency and Events Occurring Outside Formal Training

If you want to know how confident soldiers are that they can perform the training tasks, or what they know about events occurring outside of the formal training situation, you can ask a different form of question. Be careful here, however. Confidence ratings have not been shown to relate well to proficiency. Soldiers tend to give unrealistically high estimates of their ability to perform the tasks in question.

Soldiers can answer questions about what is happening to them because they are in a training environment. You can question them about such things as rumors, things that happen during non-training time (phantom training, rewards/punishments for good/poor performance, etc.), what they know about administrative matters (post-training assignments, bonuses, UCMJ Articles, pay and allowances, etc.), and any other item on which they have information or misinformation.

Such items must be very carefully worded so that they mean the same thing to each soldier. Keep the questions simple.

Avoid two questions in one sentence. Keep the number of answer categories small (three or less).

As a result of this training, I can perform the duties of a loader or driver on an M60A1 Tank.

Strongly Agree Agree Uncertain Disagree Strongly Disagree	BAD. Two questions in one; too many answer categories. (Note: Agree, Uncertain, Disagree is better.)

I know how to be a loader on an A1 Tank.

Yes Need More Training First No	BETTER. One question; three answer categories; simpler wording.

The NBC training I received was

Outstanding Excellent Fair Satisfactory Unsatisfactory	BAD. The soldier has no basis for making a training quality judgment; NBC training may have had high and low spots; the usual soldier cannot differentiate between adjacent answer categories; too many answer categories.

I understood [Most / Some / None] of the NBC spot report training.

BETTER. Sharper focus for the soldier; three answer categories.

We have been getting extra training from the unit cadre after regular training.

Yes ___ No ___	BAD. This doesn't give enough information.

Did you get to practice assembly/disassembly of the M240 Machinegun after regular training?

Yes ___ (How many times? ____) No ___	BETTER. Sharper focus; some information on amount of practice.

Do not ask test questions (What is the effective range of the M240 Machinegun?), questions covered under the provisions of the Privacy Act (Has there been any homosexual activity in your barracks?), or questions with a heavy social or moral tone (How many members of your platoon smoke pot?).

Questioning Instructors About the Instruction They Conducted

Instructors can add to your knowledge about "what" happened during training from their perspective. Most of what was said above concerning questioning soldiers about "what" happened is applicable here. Instructors, however, can give you more information and you can ask more questions. You can also get written answers (you do not have to stick to simple "yes/no" answers). Examples of the kinds of questions you can ask instructors follow below.

Did you have enough assistant instructors to cover the stations during practice?

Did you have what you needed to conduct this training? (If "no," what was missing?)

What problems were there with the site selected for this training (light, noise, facilities, etc.)?

Did the weather affect training? (If "yes," how?)

Do you need more (less) time for this block of instruction? (If "yes," why?)

Did most of the soldiers (90% or more) reach standard on all the tasks during training? (If "no," why not?)

Did you follow the lesson plan? (If "no," why not?)

Are the training aids for this block accurate and up-to-date? (If "no," what changes are needed?)

APPENDIX C

STATION 1

Soldier	Engagement Number/Type*	Time (Sec)	Hit Miss	Instructor Comments
1	1/BM			Aborted by instructor. Soldier did not know how to use ballistic reticle.
	2/BM	52	Miss	Wrong range, wrong lead.
	3/BM	47	Miss	Wrong range.
	4/BM	56	Hit	
	5/BSA	74	Miss	Wrong sensing, wrong adjustment.
	6/BSA	65	Miss	Wrong adjustment.
	7/BSA	59	Hit	
2	1/BM	34	Miss	Wrong range, wrong lead.
	1/BM	39	Miss	Wrong range.
	3/BM	42	Hit	
	4/BSA	41	Miss	Wrong adjustment.
	5/BSA	46	Miss	Wrong adjustment.
	6/BSA	39	Hit	
3	1/BM			Aborted by instructor. Soldier did not know how to use ballistic reticle.
	2/BM	78	Miss	Wrong range, wrong lead.
	3/BM	81	Miss	Wrong range, wrong lead.
	4/BM	66	Miss	Wrong range, wrong lead.
	5/BM	50	Hit	
	6/BM	43	Hit	

* BS - Ballistic Reticle, Stationary
NBS - Non-Ballistic Reticle, Stationary
BM - Ballistic Reticle, Moving Target
NBM - Non-Ballistic Reticle, Moving Target
BSA - Ballistic Reticle, Sense and Adjustment
NBSA - Non-Ballistic Reticle, Sense and Adjustment

STATION 1 (Cont)

Soldier	Engagement Number/Type	Time (Sec)	Hit Miss	Instructor Comments
4	1/BM	29	Miss	Wrong lead.
	2/BM	22	Hit	
	3/BSA	46	Miss	Wrong adjustment.
	4/BSA	38	Miss	Wrong adjustment.
	5/BSA	38	Miss	Wrong adjustment.
	5/BSA	25	Hit	
5	1/BM	26	Miss	Wrong lead.
	2/BM	34	Miss	Wrong lead.
	3/BM	32	Hit	
	4/BSA	39	Hit	
6	1/BM	37	Miss	Wrong range, wrong lead.
	2/BM	39	Miss	Wrong range, wrong lead.
	3/BM	46	Hit	
	4/BSA	62	Miss	Wrong adjustment.
	5/BSA	66	Miss	Wrong sensing, wrong adjustment.
	6/BSA	64	Hit	
STATION 2				
1	1/NBS	19	Miss	Wrong sight picture.
	2/NBS	22	Hit	
	3/NBM	34	Miss	Wrong lead.
	4/NBM	39	Miss	Wrong lead.
	5/NBSA	50	Miss	Wrong adjustment.
	6/NBSA	56	Miss	Wrong adjustment.

STATION 2 (Cont)

Soldier	Engagement Number/Type	Time (Sec)	Hit Miss	Instructor Comments
1	7/BS	34	Miss	Wrong range.
	8/BS	35	Miss	Wrong range.
	9/BM	77	Miss	Wrong range, wrong lead.
	10/BM	84	Miss	Wrong range, wrong lead.
	11/BSA	66	Miss	Wrong adjustment.
	12/BSA	83	Miss	Wrong adjustment.
2	1/NBS	26	Hit	
	2/NBS	21	Hit	
	3/NBM	39	Miss	Wrong lead.
	4/NBM	30	Hit	
	5/NBSA	61	Hit	
	6/NBSA	30	Hit	
	7/BS	54	Miss	Wrong range.
	8/BS	51	Miss	Wrong range.
	9/BM	48	Miss	Wrong range, wrong lead.
	10/BM	35	Miss	Wrong lead.
	11/BSA	47	Miss	Wrong adjustment.
	12/BSA	58	Hit	
3	1/NBS	55	Hit	
	2/NBS	40	Hit	
	3/NBM	46	Miss	Wrong lead.
	4/NBM	45	Hit	
	5/NBSA	62	Hit	

STATION 2 (Cont)

Soldier	Engagement Number/Type	Time (Sec)	Hit Miss	Instructor Comments
3	6/NBSA	50	Hit	
	7/BS	37	Miss	Wrong range.
	8/BS	21	Hit	
	9/BM	35	Hit	
STATION 3				
1	1/BS	26	Miss	Wrong range.
	2/BS	55	Hit	
	3/BM	74	Miss	Wrong lead.
	4/BM	67	Hit	
	5/BM	60	Hit	
	6/BSA	84	Hit	
2	1/BS	14	Hit	
	2/BM	32	Hit	
	3/BM	27	Hit	
	4/BSA	36	Miss	Wrong adjustment.
	5/BSA	42	Hit	
3	1/BS	25	Miss	Wrong range.
	2/BS	37	Miss	Wrong range.
	3/BS	35	Miss	Wrong range.
	4/BS	34	Miss	Wrong range.
	5/BS	38	Hit	
	6/BM	94	Miss	Wrong range, wrong lead.
	7/BM	79	Miss	Wrong range, wrong lead.

STATION 3 (Cont)

Soldier	Engagement Number/Type	Time (Sec)	Hit Miss	Instructor Comments
3	8/BM	90	Miss	Wrong range, wrong lead.
	9/BM	82	Miss	Wrong range.
	10/BM	70	Miss	Wrong range.
	11/BM	88	Miss	Wrong range, wrong lead.
	12/BSA	94	Miss	Wrong sensing, wrong adjustment.
	13/BSA	85	Miss	Wrong sensing, wrong adjustment.
	14/BSA	89	Miss	Wrong adjustment.
	15/BSA	64	Miss	Wrong adjustment.
	16/BSA	69	Miss	Wrong adjustment.
	17/BSA	76	Hit	
4	1/BS	28	Miss	Wrong range.
	2/BS	35	Hit	
	3/BM	38	Miss	Wrong range, wrong lead.
	4/BM	30	Miss	Wrong lead.
	5/BM	42	Hit	
	6/BSA	40	Miss	Wrong adjustment.
	7/BSA	65	Hit	
	8/BSA	53	Hit	
STATION 5				
1	1/NBM	27	Miss	Wrong lead.
	2/NBM	29	Miss	Wrong lead.
	3/NBM	24	Hit	
	4/BM			Aborted by instructor. Soldier did not know how to use ballistic reticle.

STATION 5 (Cont)

Soldier	Engagement Number/Type	Time (Sec)	Hit Miss	Instructor Comments
1	5/BM	75	Miss	Wrong range, wrong lead.
	6/BM	84	Miss	Wrong range, wrong lead.
	7/BM	74	Miss	Wrong lead.
	8/BS	66	Hit	
	9/BS	51	Hit	
	10/BM	64	Miss	Wrong lead.
	11/BM	68	Miss	Wrong lead.
	12/BM	74	Hit	
	13/BM	60	Hit	
2	1/NBM	25	Hit	
	2/BM	49	Hit	
	3/BSA	46	Hit	
	4/BSA	28	Hit	
3	1/NBM	37	Miss	Wrong lead.
	2/NBM	46	Hit	
	3/BM	51	Miss	Wrong range, wrong lead.
	4/BM	40	Miss	Wrong range, wrong lead.
	5/BM	27	Hit	
	6/BSA	32	Hit	
	7/BSA	48	Hit	
4	1/NBM	18	Miss	Wrong lead.
	2/NBM	28	Hit	
	3/BM	36	Miss	Wrong range, wrong lead.

STATION 5 (Cont)

Soldier	Engagement Number/Type	Time (Sec)	Hit Miss	Instructor Comments
4	4/BM	40	Miss	Wrong range, wrong lead.
	5/BM	52	Hit	
	6/BSA	38	Miss	Wrong sensing, wrong adjustment.
	7/BSA	29	Miss	Wrong adjustment.
	8/BSA	47	Hit	
5	1/NBM	25	Hit	
	2/BM	34	Miss	Wrong range, wrong lead.
	3/BM	43	Hit	
	4/BSA	64	Hit	
	5/BSA	67	Hit	